UNITED STATES DISTRICT COURT

EASTERN DISTRICT OF NEW YORK

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ROBERT A. FALISE, LOUIS KLEIN, JR., :
FRANK MACCHIAROLA, and CHRISTIAN :
E. MARKEY, JR., :
Plaintiffs, :
vs. : Case Number
AMERICAN TOBACCO COMPANY; B.A.T. : 99 CV 7392
INDUSTRIES, PLC; BROWN & WILLIAMSON:
TOBACCO CORPORATION; PHILIP MORRIS,:
INC.; LIGGETT GROUP, INC.; and :
LORILLARD TOBACCO COMPANY, :
Defendants. :

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DEPOSITION OF RICHARD D. THOMAS

Washington, DC

Tuesday, June 27, 2000

REPORTED BY:

SARA EDGINGTON

A. WILLIAM ROBERTS, JR., & ASSOCIATES

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Deposition of RICHARD D. THOMAS, called for examination pursuant to notice of deposition, on Tuesday, June 27, 2000, in Washington, DC, at the offices of Womble, Carlyle, 1120 19th Street NW, at 9:57 a.m., before SARA EDGINGTON, a Notary Public within and for the District of Columbia, when were present on behalf of the respective parties:

ROBERT M. TURKEWITZ, ESQ.
Ness, Motley, Loadholt,
Richardson & Poole
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Mount Pleasant, South Carolina 29465
843-216-9000
On behalf of Plaintiffs

R. DAL BURTON, ESQ.
Womble, Carlyle, Sandridge & Rice
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404-888-7372
On behalf of Defendant R.J. Reynolds

--continued--

APPEARANCES (CONTINUED):

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On behalf of Defendant R.J. Reynolds

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202-371-5988
On behalf of Defendant Philip Morris

P R O C E E D I N G S

(Thomas Exhibit 1 identified.)

VIDEO OPERATOR: This is the deposition of Richard D. Thomas taken on behalf of Plaintiffs in the matter of Robert A. Falise, Louis Klein, Jr.,

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Frank Macchiarola, and Christian E. Markey, Jr., Plaintiffs, versus the American Tobacco Company; R.J. Reynolds Tobacco Company; B.A.T. Industries, PLC; Brown & Williamson Tobacco Corporation; Philip Morris, Incorporated; Liggett Group, Inc.; and Lorillard Tobacco Company, Defendants, Case Number 99 CV 7392 (JBW) for the United States District Court, Eastern District of New York.

This deposition is being taken at Womble, Carlyle, 1120 19th Street Northwest, Washington, D.C. The time is approximately 9:57 a.m. The date is June 27th, 2000.

The court reporter is Sara Edgington with the firm of A. William Roberts. I'm the video operator, Chris Weiskircher, also with A. William Roberts.

Will the reporter swear the witness.

Whereupon,

RICHARD D. THOMAS

was called as a witness and, having first been duly

sworn, was examined and testified as follows:

VIDEO OPERATOR: Will counsel please identify themselves and who they represent.

MR. TURKEWITZ: My name is Robert M. Turkewitz. I represent the Plaintiffs in this case.

MR. BURTON: Dal Burton on behalf of R.J. Reynolds Tobacco Company.

MR. THOMPSON: Brent Thompson on behalf

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of R.J. Reynolds.

EXAMINATION

BY MR. TURKEWITZ:

Q. Sir, would you please state your full name and address for the record.

A. I'm Richard Dean Thomas, T-h-o-m-a-s. My address is DELETED.

Q. Is that your home or business address?

A. That's home address.

Q. What is your business address?

A. Business address is 1301 Dolly Madison Boulevard, McLean, Virginia.

Q. Sir, have you been retained to give expert testimony in this case?

A. Yes, I have.

Q. Who retained you?

A. R.J. Reynolds.

Q. Sir, I'm going to hand you what has been marked as Thomas Deposition Exhibit Number 1 and ask if you can identify this document for the record.

A. Yes. This is the notice of deposition.

Q. Okay. Have you reviewed this notice of deposition prior to today?

A. Yes.

Q. Okay. When did you review it?

A. Yesterday.

Q. Attached to this notice duces tecum, do

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you see a request for production of documents, as identified as schedule A?

A. Yes, I do.

Q. And did you review that?

A. Yes.

Q. Have you brought with you any documents in response to the request for documents?

A. Yes, I have.

Q. Do you have those with you?

A. Yes.

Q. Can I see them?

A. This is basically the file on this case.

Q. Okay. Thank you.

(Thomas Exhibits 2, 3, and 4 identified.)

BY MR. TURKEWITZ:

Q. Dr. Thomas, I'm handing you the documents you just handed to me. I'm handing them back to you and ask if you can identify each of these documents which you indicated are your complete file in this case -- or is your complete file in this case.

A. Okay. Well, the first one, which I guess you've already marked as an exhibit, Exhibit 1, is a notice of deposition. Exhibit 2 is my expert witness report that I wrote.

Q. Let me note that we've marked that exhibit as Exhibit 2 for the record, and the other exhibits are also marked in numerical order.

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A. And then the documents cited that I relied upon are Exhibit 3. And then copies of the two invoices that have been submitted on this are Exhibit 4.

Q. Okay. Thank you. Again, this is your complete file in this case?

A. Yes.

Q. Reviewing our request for production of documents, paragraph 2 asks you to produce all documents which you relied on in forming and providing your opinions in this litigation. The documents that you produced today, are those -- is

that responsive to that request?

A. Well, there is a list of documents that I relied upon in there that are published and in the public record.

MR. BURTON: For purposes of the record, there's been an agreement of counsel, pursuant to which reliance materials for experts have and were exchanged, as I understand it. So it is my understanding that it would not be incumbent on the witness to bring with him today all of the reliance materials, but those had been previously provided.

MR. TURKEWITZ: I would note for the record that we served this notice of deposition last week and specifically requested that the documents that are responsive to this request be produced to us

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48 hours prior to the deposition, and we did not receive any documents prior to today other than the report, which we were provided.

MR. BURTON: I would be more than willing to go over the list with Dr. Thomas. My understanding is that the reliance list is substantially identical to that that he has provided in prior cases, the transcripts of which have been provided to the Plaintiffs in this case and have been available for months, if not years, and that other

members of your firm have examined Dr. Thomas with respect to those.

BY MR. TURKEWITZ:

Q. So it's your testimony, sir, that Exhibit 3, entitled "documents relied upon, Richard D. Thomas, PhD," are a list of all documents that you relied upon in rendering your opinions in this case?

A. They're not all documents, because this is an area that I've worked in for 20 years. It would be impossible to provide all documents that I've read over that time period. They'd be probably in the hundreds of thousands. The primary documents that I relied upon, though, in preparing my expert report and then considering this case are what you have in front of you.

Q. In your testimony at trial, do you expect to be relying upon or testifying about any other documents other than those that are listed here in

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Exhibit 3?

A. I don't know, in that it's a bit early to tell. Like I said, I tried to do the best I could in preparing a set of documents that were primary reliance documents, and I assume that those would be the main ones. But there may be others, depending upon what issues occur at the time of trial.

Q. Can you tell me right now as you sit here, or list for me any other documents other than the documents listed in Exhibit 3 that you expect to rely upon?

A. No, I can't.

Q. Looking at paragraph 3, it requests that you produce all documents, including but not limited to reports, notes, summaries, and drafts of deponent's expert disclosure, that deponent prepared or considered in his capacity as an expert witness for the Defendants in this litigation. Do you have any documents responsive to this request other than what you have provided today?

A. Not other than what I've provided.

Q. Do you have a file that you maintain concerning your work for -- work in the tobacco litigation?

MR. BURTON: Are you talking about separate and apart from this case?

MR. TURKEWITZ: Yes.

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THE WITNESS: I have files that I have concerning other litigation.

BY MR. TURKEWITZ:

Q. Involving the tobacco litigation?

A. Some of it involves tobacco litigation,

some involves other substances, such as pesticides or pharmaceuticals or various types of materials.

Q. With respect to the tobacco litigation, do you have a general file that you maintain concerning your work in the tobacco litigation?

A. No, I don't have a general file.

Q. Okay. How do you maintain your files concerning the tobacco litigation?

A. They're usually based just as you see, a file for each case that's being brought, but as I indicated before, this is an area I've worked in for approximately 20 years. So I have thousands of reports and so forth that are published in the literature, and I don't know if you refer to those as "files" or whatever, but I have a lot of information. I'm a specialist in lung cancer. So that's what I have information on.

Q. Do you have those documents organized by topic?

A. No, they're not organized by topic.

Q. How are they organized?

MR. BURTON: Are you talking about the files he has on tobacco, or all the files that you

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just testified he had with respect to lung cancer?

MR. TURKEWITZ: I think we're talking

about his files relating to tobacco.

MR. BURTON: Okay.

THE WITNESS: They're organized in different ways, depending upon whether it's something I've written and published, or may be materials that support a publication. They may be organized in some electronic format. There are various ways of organizing thousands and thousands of documents.

BY MR. TURKEWITZ:

Q. Have you categorized your files relating to tobacco in any way?

A. Basically, they're categorized based on the case, as best I can say, but there are issues that I have had an interest in for some time that may be separate that I've published on.

Q. What issues are those?

A. Pathology, mechanisms of disease.

Q. Any others?

A. Statistics.

Q. Any others?

A. Toxicology.

Q. Any others?

A. Risk assessment.

Q. Any others?

A. Public health.

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Q. Any others?

A. I think those are the major areas. There may be some subareas.

Q. Do you have any files specifically relating to asbestos?

A. Yes, I have files relating to asbestos. It's considered a human carcinogen, and that's the area that I specialize in.

Q. Paragraph 4 requests that you produce all documents that you considered and rejected in forming and providing your opinions in this litigation, including, without limitation, transcripts or recordings of testimony from any trial or deposition.

MR. BURTON: For purposes of the record, Rob, to my recollection, that's a paragraph that is in your standard subpoena and one in which there has been considerable objection, and one that I don't believe your experts have been asked to produce and, quite frankly, one that I don't know how an expert like Dr. Thomas can respond to, given his expertise and longevity in the area. I wanted to put the objection on the record.

BY MR. TURKEWITZ:

Q. Can you identify any documents you've

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considered and rejected in providing and forming your opinions in this litigation?

A. Do you want to restate the question so I can make sure I understand it in context of the work that I've done.

Q. Can you think, as we sit here today, of any documents that you reviewed, considered, and rejected in arriving at the opinions that you expected to give in this litigation in this case?

A. It's a very difficult question to answer because I read, some days, hundreds of documents. Some are well done and some are not well done, and these are scientific studies. It's almost impossible to answer your question in such a vague term. If you'd identify a specific year and a specific author, I could tell you whether I had read that document or thought I read the document and what was in it.

See, we're talking about hundreds of thousands, probably over a million documents, and I can't respond to your vague question about one specific document.

Q. Paragraph 5 asks you to produce documents which counsel provided to you that pertain to the subject matter of your expected testimony. Other than what you've provided today, are there any

documents that counsel provided to you concerning

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your testimony in this case?

A. The only documents that I've received from counsel, besides the ones that are in the folder, would be some Plaintiffs' depositions.

Q. Okay. What depositions did you receive?

A. I received about seven or eight different expert -- well, they weren't depositions. I guess they were expert reports, and I reviewed those.

Q. Can you identify the reports that you reviewed?

A. They're the ones that were specifically related to the area that I was asked to examine. I looked at them yesterday. I don't remember the specific ones. I'd have to go back and look. There were about six or seven of them. It's been a while since I actually read through them all.

Q. Have you formed any opinions based on your review of the reports?

MR. BURTON: Object to the form.

THE WITNESS: I simply read these as expert reports. You always form opinions as you read, whether you agree or disagree with what was said, but it's the same thing as reading scientific reports. You either agree or disagree with what's

said.

BY MR. TURKEWITZ:

Q. Let me put it this way. You don't expect to give any opinions at trial concerning your review

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of those reports, do you?

A. I could very well.

MR. TURKEWITZ: We'd object to that. He can't even identify the reports he's reviewed and read, and they have not been provided to us.

MR. BURTON: They're expert reports from your own witnesses. I trust you have them.

MR. TURKEWITZ: We're here now to take Dr. Thomas's deposition, and we specifically requested that he provide information like that, bring it with him today. He's not prepared to talk about it. He did not bring the reports with him.

MR. BURTON: I understand your position.

MR. TURKEWITZ: I note for the record that we would object.

BY MR. TURKEWITZ:

Q. Were you provided any other information, sir, with regard to this case?

A. No.

Q. Paragraph 6 asks you to produce a list of all documents, journals, articles, studies, reports,

and other such materials used, relied on, or referenced by you in formation of each of your opinions contained in your expert disclosure or report and in the formation of the testimony and opinions you expect to give in this case, and for each document, journal, article, study, report or

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other such material referenced above which are not publicly available, a copy of each.

The first question is, did you -- I think we've established before that your list contains all the documents that you could -- all the important articles that support -- you believe support your opinions; is that correct?

A. Not necessarily "support." These are documents that I thought were important documents that I relied upon. I may agree or disagree with some of them.

MR. TURKEWITZ: Let me note, we object to Dr. Thomas relying on any other published documents not contained in this list of documents.

BY MR. TURKEWITZ:

Q. The second part of my question is, are there any documents that you rely on that are not publicly available?

A. To the best of my knowledge, all the

materials I provided on the reliance list are publicly available, and throughout the years, what I've been reviewing are publicly available research reports.

Q. Paragraph 7 asks you to produce medical, scientific articles that you presently anticipate specifically referring to during your direct testimony. I think we've addressed that before. Those articles are contained in your list; is that

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correct?

A. Yes. For the most part -- it's difficult to say exactly what I may need to use during testimony because I'm not sure what all the issues may be, but based on the assignment I've got, I've done the best I can in preparing a set of reliance materials.

Q. Paragraph 8 asks you to produce all correspondence, reports, and documents that you shared or exchanged with any other expert witness engaged by the Defendants in this litigation at any time on the matters which are the subject of your expert testimony in this litigation. Are there documents responsive to that request?

A. No. I haven't exchanged documents with expert witnesses for the Defendants.

Q. Paragraph 9 asks you to produce all correspondence, notes, memoranda, and documents regarding any communications or contact by you with any tobacco company or tobacco trade association. Do you have documents responsive to that request?

A. Like I say, the documents that refer to this case are in the folder that I gave you.

Q. Okay. Do you have documents that are responsive to this request that are not case-specific concerning the tobacco litigation; in other words, are not specific to each individual case that you've

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been involved in in the tobacco litigation?

MR. BURTON: Object to the form.

THE WITNESS: I don't really understand your question. If you want to rephrase it, I will try to answer it.

BY MR. TURKEWITZ:

Q. You indicated that you have a specific file for each case that you've been involved in in the tobacco litigation; correct?

A. Yes.

Q. And other than those files, do you have documents responsive to that request?

MR. BURTON: Which request are we talking about now, Rob?

MR. TURKEWITZ: We're on request number 9, all correspondence, notes, memoranda, and documents regarding any communications or contact by deponent with any tobacco company or tobacco trade association.

THE WITNESS: If this is referring -- the reason I'm having difficulty in answering, if this is referring to any correspondence I've received over 20, 25 years, that would be impossible to provide. Like I say, the materials that I've received specific to this case, you have, but I may have received correspondence from scientists, particularly tobacco companies.

I've been a peer reviewer on articles

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that have been published going back to the 1970s. So I think what I've done is try to respond for this case to what you have requested.

BY MR. TURKEWITZ:

Q. We may get into that -- some of the things that you raised a little later on. Paragraph 10, all correspondence between Defendants' counsel and deponent, including billing records in connection with this case. I believe you produced --

A. Yeah.

Q. -- as Exhibit 4 an invoice or two

invoices.

A. That's correct. Those are the billing records.

Q. Paragraph 11 asks you to produce all public statements, releases, interviews or reports of the tobacco industry that form a basis for your opinions. Are there any such documents?

A. Well, again, that's a very vague question. If that refers to 20 years' worth of public statements, I really don't even know how to answer that, it's so vague.

Q. Are there any documents that come to mind?

A. My opinions are based on scientific publications, not on public statements or interviews from the tobacco industry. They're based on

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scientific publications. I don't know how to respond to this. It's such a big request.

Q. Paragraph 12 asks you to produce a list of all prior testimony and expert reports filed by you in lawsuits or administrative proceedings involving smoking and health. Do you have such a list of prior testimony?

A. Yes. It's attached to my expert report. I think it's at the end of the expert report.

Q. That is the expert report that was listed as Exhibit 2?

A. Yes.

Q. Let me show that to you and ask if you see that list attached to the report.

A. Yes. At the end of the expert report on page 4, it refers to prior testimony and statements of compensation.

Q. It states here that you have testified in four other cases in the past four years in the tobacco litigation?

A. In three other cases. One is not tobacco litigation. It's -- it deals with another issue. That's Davidson.

Q. I see. I'm sorry. Excuse me. I didn't see that.

What did you do in order to put together this list that's set forth in Exhibit 2, list of prior testimony?

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A. I went back to my files and looked at the files in which I had testified and put together the list.

Q. When did you prepare that list?

A. I think that was dated -- actually, I'm not sure when that was dated. I'd have to look at

it. Early the end of last year or early this year.

Q. Have you been deposed or testified in any case since this list was put together?

A. I haven't testified since the list has been put together. I have been deposed.

Q. How many times have you been deposed since you put this list together?

A. What's the date on that? And this is for tobacco litigation, is that correct, not all depositions?

Q. Yes, sir, in tobacco litigations. I don't see a date. Maybe you can find a date on this report.

A. As I remember, this was prepared towards the end of last year. I would say approximately twice I've been deposed.

Q. Dr. Thomas, your list of cases in which you've been deposed indicates, I believe, that the first case -- the first tobacco case in which you testified in deposition was in October of 1997 in Jacksonville, Florida; is that correct?

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A. No, that's not correct. You said "deposed." That's the first one I testified in.

Q. Okay. Your deposition took place in March of 1997; is that correct?

A. I don't know. I'd have to look at that.

Q. Let me ask you an open-ended question, sir. When were you first deposed, or when did you first testify in the tobacco litigation?

MR. BURTON: I object to the form.

THE WITNESS: I don't remember when I was first deposed, but the first time I testified was noted here, Karbiwnyk. That's the one you were reading, in October 1997 in Jacksonville, Florida.

BY MR. TURKEWITZ:

Q. Were you deposed in that case?

A. I believe so.

Q. The deposition is not listed in your list.

A. It says "prior testimony."

Q. Are you referring to trial testimony in this list?

A. That's what I was -- that's what I put there, trial testimony.

Q. Do you have a list that contains your depositions as well in the tobacco litigation?

A. I haven't put one together.

Q. In request number 12, we asked you to provide all other testimony in lawsuits or

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administrative proceedings involving smoking and

health.

Can you put together a list -- let me establish this. Your testimony includes testimony in deposition, does it not?

A. I'm not sure what you're asking.

Q. Well, your prior testimony would encompass your deposition testimony and your trial testimony; is that correct?

A. Well, trial testimony is obviously given during a trial. Deposition testimony is given under oath, if that's what you're asking.

Q. And is it fair to say that what you've produced today does not include your deposition testimony?

A. What I have produced here is, like I say, is prior testimony in court cases. That's what I was asked to produce, and that's what I've produced.

Q. Does it include your deposition testimony in the tobacco litigation?

A. No, it does not include deposition testimony.

Q. Okay. It took us a while to get to that. I would request a list, a complete list of all of Dr. Thomas's testimony, including his deposition testimony, in all tobacco cases.

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MR. BURTON: That's fine. I think your firm already has it, but we'll check.

BY MR. TURKEWITZ:

Q. Dr. Thomas, when was the first time you did any work for the cigarette industry?

A. Well, "for the cigarette industry" is a little vague. I've been asked over the years to look at various issues concerning lung cancer, and it wasn't necessarily for any industry specifically. It was just simply a request, which I often respond to. I first looked at, I guess, smoking and health issues back when I was studying lung cancer in the 1970s.

So I first was approached by attorneys, I guess is what you're asking, about 1983, 1984. In fact, 1982, early 1980s.

Q. Back in the 1970s, was any of your work sponsored in any way by the cigarette industry, by the tobacco companies?

MR. BURTON: Object to the form.

THE WITNESS: I'm not absolutely sure, but to be responsive and try to answer your question, I believe some of the work that I did at CIBA-GEIGY Corporation on pesticides for tobacco may have been partially sponsored by the cigarette industry, but I'm not positive of that. It's been an awful long

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time ago.

BY MR. TURKEWITZ:

Q. When were you with CIBA-GEIGY?

A. Let's see, 1974 through about 1976, '77. It's on my resume.

Q. And do you remember what company, tobacco company you did that work for?

MR. BURTON: Object to the form.

THE WITNESS: I don't remember which tobacco companies may have been involved, but my understanding at the time, I was running the scientific studies at CIBA-GEIGY, and was not involved very much in who was paying for them, but my understanding at the time, because I was a study director, was that some of the money was from the tobacco companies, specifically to support some of the studies.

BY MR. TURKEWITZ:

Q. And that was -- that involved studies concerning pesticides for tobacco or tobacco as a pesticide?

A. It was concerning the use of pesticides that were either produced by CIBA-GEIGY Corporation or proposed to be marketed by CIBA-GEIGY Corporation that could be used by farmers to raise tobacco.

Q. How long did those studies take place, for what period of time?

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A. Approximately 18 months.

Q. And do you recall the pesticides that were studied?

A. No. It's been too long ago.

Q. Do you recall doing some work sponsored by the cigarette companies while you were at Borriston Laboratories?

A. Yes.

Q. What kind of work did you do at Borriston for the tobacco companies?

A. Like I say, it wasn't necessarily for the tobacco companies. Some of the work was sponsored by the National Cancer Institute, some by other agencies of the federal government, and then some was by the tobacco companies. It's a little hard to separate all those different studies. All of them involved some aspect of tobacco.

If you want to be more specific, I will try to answer your question.

Q. Well, why don't you describe for us the work that you did, and to the best of your knowledge, who the sponsors were?

A. Again, the caveat is that I was the

scientist running the studies, and I was not as concerned of the financing of the studies. I was not sure who actually paid for them. The studies that were most sponsored by tobacco companies were studies to look at additives for the production of commercial

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cigarettes, such things as flavorings and that type of thing. And I think, for the most part, that was sponsored by the tobacco industry, either one or several companies.

The National Cancer Institute studies were inhalation studies in dogs, and we had a series of enzyme studies that were sponsored by the Food and Drug Administration, some of them by tobacco companies.

Again, this is quite a few years ago, but to the best of my recollection, those are the three areas that most of the studies fell in that were specific to these -- there were other areas. This only represented a small portion of the type of work that I did there.

Q. At that time, you were the director of the division of biochemical toxicology for Borriston Laboratories; is that correct?

A. That's correct.

Q. I believe you testified that you were

looking at approximately 200 different chemicals that were being used as additives to cigarettes in that aspect of your work?

MR. BURTON: Object to form.

THE WITNESS: I have to think. I'm not sure about the number. It was approximately 200. It may have been 150. It may have been 250. But again,

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it was approximately 200.

BY MR. TURKEWITZ:

Q. And do you recall the chemicals that you looked at?

A. We didn't know what the chemicals were. These were blind studies, which meant that what we received from the companies were numbered substances with no name, and we did the tests, and the results were reported for that number.

Q. And do you remember some of the companies that were involved in sponsoring that work?

A. Actually, I don't remember which ones. I wasn't involved in working directly with or negotiating with the companies on the amount of money that was paid and so forth. My responsibility was to conduct the studies. I wasn't really on the financial side. I simply knew that it was -- they were tobacco companies or a company -- it may have

been just one company -- but I don't know which ones.

Q. The enzyme studies that you were involved in, what -- can you describe those studies?

A. We were looking at substances -- again, these were blind studies -- that may increase what's called microsomal proliferation in the liver. When you see microsomal proliferation, that means the liver is being induced. Drug companies, people that make chemicals prefer to market things that don't induce liver enzymes. So that's what we were

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studying.

Q. Did you ever study any by-products of combustion involving cigarettes?

A. Are we talking about at Borriston Laboratories?

Q. Yes.

A. Will you repeat the question so I can understand what you're asking?

Q. Yes, sir. While you were at Borriston Laboratories, did you ever test or study any by-products of combustion of cigarettes?

MR. BURTON: Object to the form.

THE WITNESS: That's difficult to ask because of the vagueness of the -- or answer because of the vagueness of the question. Let's see. Maybe

I can try to simply respond by saying that as the studies were conducted, we normally had to have a baseline, which tells us that we are studying the same concentration of materials from one set of studies to the next.

So we would analyze such things as nicotine concentrations in smoke to make sure that those concentrations weren't changing with new batches of tobacco. That's the best response I can give you.

BY MR. TURKEWITZ:

Q. Did you find over time that the

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concentrations changed, the nicotine concentrations?

A. No. Our purpose in those studies was to maintain those concentrations within a very narrow, specified limit.

Q. Did they vary at all?

A. They varied slightly.

Q. Was that for specific types of cigarettes or specific brands of cigarettes?

A. No. These were -- the materials that we studied were standardized tobacco materials that had been prepared for laboratory studies, and were all supposed to have the same amount of nicotine and other substances in them, so that there was not a

variable within the study.

Q. So the work that you did involved tobacco that had not yet been processed into cigarettes; is that correct?

MR. BURTON: Object to the form.

THE WITNESS: No, that's incorrect. The substances that we had studied often were processed into standardized cigarettes.

BY MR. TURKEWITZ:

Q. So at the time you studied them, they had already been manufactured by the tobacco companies and sent to you?

MR. BURTON: Object to the form.

THE WITNESS: I can't answer that in that these were standardized materials that were produced

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for laboratory studies. These were not produced for sale, if that's what you're referring to. These were produced for laboratory studies, and they were developed with the intent of not having variation from one batch to the next.

BY MR. TURKEWITZ:

Q. And you don't know whether or not these are the same cigarettes that were being marketed to the public; is that correct?

A. I don't know how to answer that. These

were prepared for laboratory animal studies. I would assume that these are fairly expensive. I don't think that the public would want to pay the prices that these standardized materials would cost. So I doubt these were marketed to the public. These were for laboratory animal studies.

Q. Did you ever conduct any testing concerning the presence and effects of other by-products of combustion, including benzopyrene?

A. I've conducted studies on benzopyrene.

Q. What studies have you conducted?

A. Well, I've done extractions of various tars, not just cigarette tars but other types of tars, road tars, even combustion tars from various industrial sources, and looked at the benzopyrene concentrations in those.

Q. Have you ever performed this type of work

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for cigarette companies?

A. From what I remember of the protocols or the descriptions of the studies that we did that were sponsored by cigarette companies, I don't remember doing benzopyrene studies on those. We may have. It's been too many years ago. We very well could have, just to see if the concentrations were the same from one batch to another, but I don't remember doing

it on those, but we did it on other materials.

Q. Did you ever do it on tobacco-specific nitrosamines?

A. Do what?

Q. Any studies or experiments or tests concerning TSNAs as a by-product of combustion on cigarettes?

A. I don't understand what you're asking.

Q. Have you ever been involved in any studies sponsored by the tobacco industry, or tobacco companies, on TSNAs?

MR. BURTON: Object to the form.

BY MR. TURKEWITZ:

Q. Tobacco-specific nitrosamines.

A. Like I said, I'm trying to answer your question. I have worked on N-nitroso compounds. I have worked on those, in fact, since 1960, on N-nitroso compounds, which is what you're referring to, since the 1960s. The best I remember, I think at Borriston Laboratories, I think we may have done --

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no, we didn't do any work at Borriston Laboratories on N-nitrosos. We did some work at CIBA-GEIGY on N-nitroso formation. It may have been in tobacco, it may not have been. I don't remember.

Q. What did that work involve?

MR. BURTON: Object to the form.

THE WITNESS: That involved -- again, this is more than 20 years ago. So I'm just doing this by memory, but that involved looking at the formation of N-nitroso compounds in plants that may or may not have been treated with pesticides or various fertilizers, and what the concentrations of the N-nitroso compounds may be.

Q. Did any of that work involve the toxicological effect on humans or animals?

MR. BURTON: Object to the form.

THE WITNESS: Well, the reasoning for doing N-nitroso studies is to try to understand the effects in humans, and that's why we did a lot of the studies. A lot of them were done in animals, some of them were done in microorganisms.

BY MR. TURKEWITZ:

Q. Do you remember the results of those studies?

A. Some N-nitroso compounds are -- in some studies are carcinogenic, in other studies they're not. Some are more potent than others. As a class,

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they generally are reactive and tend to cause mutations.

Q. And as you sit here, can you say whether

or not -- or do you recall whether or not the tobacco companies sponsored any of this work?

A. I don't know whether they did at CIBA-GEIGY. At Borriston Laboratories, I don't remember us doing N-nitroso studies, so I don't think we did there. At CIBA-GEIGY, the best I can answer is, I don't think that was a part of the studies that were sponsored by them, but we were doing N-nitroso studies at the time, so we may have done some. I just don't remember.

Q. What was the purpose of doing this work at CIBA-GEIGY?

A. Well, the overall purpose is -- CIBA-GEIGY is one of the -- used to be one of the world's largest chemical companies. Parts have been sold and so forth now. When I worked for them, I think it was the second largest in the world, and they wanted to market chemical products, including pesticides. And so our studies were to try to bring these pesticides to market and obtain federal approval. That was the purpose of the studies.

Q. Were the studies published?

A. Some were published, some were not published. They were done for -- like I say, they were done with the intent of bringing the product to

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market. So almost all the studies, if they were studies that were worthwhile, turned up being worthwhile, were submitted to a federal agency for approval of the product. If it were a pesticide, it was submitted to EPA. If it were a pharmaceutical, it was submitted to the Food and Drug Administration.

Q. Now, are these compounds, are these the same compounds that are a by-product of combustion involving cigarettes?

MR. BURTON: Object to the form.

THE WITNESS: You'll have to explain to me what compounds you're referring to.

BY MR. TURKEWITZ:

Q. I'm referring to tobacco-specific nitrosamines.

A. For what purpose? You've lost me. I'm not sure what we're referring to.

Q. Okay. Referring to toxicological effects.

A. Yes. And what was the question?

Q. The question is, did any of the N-nitroso compounds involve compounds that are by-products of combustion of cigarettes, to your knowledge?

MR. BURTON: Object to the form.

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THE WITNESS: N-nitroso compounds are formed naturally in nature. They may be formed during combustion, but usually are not, actually, and some of those are the same compounds.

That's about the best I can answer your question. I studied a wide range of N-nitroso compounds over the years.

BY MR. TURKEWITZ:

Q. Can you identify the chemicals and compounds that are by-products of combustion in cigarettes?

A. I don't know how many you want identified. In the last few years, we have -- scientists that I worked with have identified in the thousands of compounds that are by-products of combustion. We can do that with anything that we combust now. We could do it with the air in here. We could take samples of this air and find thousands of materials.

Q. Can you identify for the jury, please, all of the compounds that you are aware of that are by-products of combustion of cigarettes and are carcinogenic?

MR. BURTON: Object to the form.

THE WITNESS: Well, your question -- I

can't answer the question the way you've stated it,

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because it assumes, for example, that these things are carcinogenic, and that's an improper assumption to begin with.

BY MR. TURKEWITZ:

Q. Are you aware of any by-products of combustion that are carcinogenic?

MR. BURTON: Object to the form.

THE WITNESS: It depends how you define "carcinogenic." Like I say, in one study, they may show some carcinogenic potential. In another study, they may not. And based on how those are judged by various experts, they may or may not be classified as carcinogenic.

BY MR. TURKEWITZ:

Q. How do you define "carcinogenic"?

A. I define it based on what the guidelines are that I'm working under. So if I'm working for the Environmental Protection Agency, I will follow the sets of guidelines that they have. If I'm working for Food and Drug Administration on a particular pharmaceutical, then I'll follow a different set of guidelines, and they vary from one group to another, from one agency to another.

Q. Okay.

A. I don't have a specific definition. I simply use what the guidelines are. Carcinogenicity is a very vague term.

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Q. What are the guidelines that you are working under here today as an expert witness for R.J. Reynolds?

MR. BURTON: Object to the form.

THE WITNESS: I don't know what you mean by the question. Do you want to rephrase it?

BY MR. TURKEWITZ:

Q. You mentioned that the definition of "carcinogenic" depends on what guidelines you're following. My question is, what guidelines are you following here today in this case as an expert witness for R.J. Reynolds?

MR. BURTON: Same objection.

THE WITNESS: Your question is very vague, and I'm not quite sure how to answer it. I guess the best way I can answer that is simply to say that I'm following the scientific guidelines of how we consider scientific studies.

BY MR. TURKEWITZ:

Q. And can you identify a source of that guideline that you're following today? Is it a standard guideline?

MR. BURTON: Object to the form.

THE WITNESS: It's been repeated in several textbooks over the years and by various groups that are public health authorities in the United States, like the Surgeon General.

BY MR. TURKEWITZ:

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Q. And how would you define that guideline of carcinogenicity? How would you describe it?

MR. BURTON: Object to the form.

THE WITNESS: I can't define a guideline. Like I say, the way that I judge whether something's carcinogenic is based upon what the purpose is for the study and under what guidelines we are developing the study.

Your question is so vague, I don't even know how to answer it.

BY MR. TURKEWITZ:

Q. Well, my question is, what definition would you use for carcinogenicity in determining whether any of the by-products of combustion of cigarettes are carcinogenic?

A. If I were to be asked -- and I haven't been asked -- to do that specifically here, but if I were asked to carry out a set of laboratory studies of tobacco smoke, I would probably select one of the

sets of leading guidelines, like say, the Environmental Protection Agency's guidelines for carcinogenicity, and carry it out. If they specified, for example, it be done in two different strains of animals, I would use two different strains of animals to conduct the study. Then I would examine it based on the statistical results to see if it met their guidelines. That's how I would conduct

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that.

Q. And it's your opinion that the EPA guideline is authoritative?

A. Well, EPA doesn't have a single guideline. The guidelines that they have are authoritative in that they're based on the best science that they could assemble, but they actually have several that they're working under.

Q. What guidelines do they have?

A. Well, they have an overall standard guideline that they go through in the past and have classified substances as an A carcinogen, B carcinogen, or C carcinogen. These are all laid out in the guidelines, or D or E. They classify them based upon the evidence.

They recently, based on recommendations from the National Academy of Sciences, have been

changing those guidelines and are now going towards a guideline more similar to the World Health Organization, which describes more of the mechanistic information on a substance and to what extent the substance may be producing cancer in one animal but would not in others because of differences in metabolism and pharmacokinetics.

Q. Do any of EPA's guidelines involve the use of epidemiological studies?

A. They consider epidemiologic studies as human evidence. It's not the only evidence that's

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considered.

Q. And does the definition that you're using today for "carcinogenicity" involve the use of epidemiologic studies?

MR. BURTON: Object to the form.

THE WITNESS: Like I say, I'm not using a definition here today. If you want to describe to me a definition you'd like to use, we could do an analysis on a substance based on that definition, but I basically use scientific criteria on judging studies and how they're conducted.

BY MR. TURKEWITZ:

Q. And does the scientific criteria that you use involve the use of animal studies?

A. Yes.

Q. What else does it involve?

A. It involves examination of human studies. It involves mechanistic biochemical studies. It includes molecular biology.

Could we take a break for a minute?

Q. Sure.

VIDEO OPERATOR: We're off the record at 11:00 a.m.

(Recess.)

VIDEO OPERATOR: We're back on the record at 11:09.

BY MR. TURKEWITZ:

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Q. Dr. Thomas, again, based on your definition that you're giving in this case of carcinogenicity, can you tell us whether any of the by-products of combustion of cigarettes are carcinogenic?

MR. BURTON: Object to the form.

THE WITNESS: Yeah, I think I already stated that I don't have a specific definition that I'm using. Basically what I use is to look at the science and decide what the science tells me about the substance.

BY MR. TURKEWITZ:

Q. And based on the science, are any of the by-products of combustion of cigarettes carcinogenic?

MR. BURTON: Same objection.

THE WITNESS: Again, that's a very vague question, but let me see if I can figure out a way to answer that. Maybe you could rephrase it.

BY MR. TURKEWITZ:

Q. What is it that you don't understand about my question?

A. How are you defining "carcinogenicity," and the way you're asking, you're asking about a vague number of compounds of which go into the thousands. So it's -- you're making it almost impossible to answer.

Q. Are you aware of any by-products of

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combustion that can be considered, in your opinion, to be carcinogenic?

A. There are several materials that are in cigarette smoke, based on laboratory animal studies, that have been, under various criteria, judged to be carcinogenic.

Q. Can you identify those materials, those chemicals?

A. I could go through and identify several

of them. I could say there are thousands of substances in there, many of which have been tested. You mentioned one yourself, benzopyrene, is a combustion product.

Q. And in your opinion, that would be considered carcinogenic?

MR. BURTON: Object to the form.

THE WITNESS: No. As I mentioned, based on various criteria, benzopyrene has been judged by various organizations to be carcinogenic.

BY MR. TURKEWITZ:

Q. And do you judge it to be carcinogenic?

A. Again, it depends on the criteria. It's one that I've used in my own laboratory studies as a positive control for carcinogenicity.

Q. Any other substances that are by-products of combustion that you would consider to be carcinogenic?

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MR. BURTON: Same objection.

THE WITNESS: Like I said, they're not my consideration. Various organizations have looked at the by-products of combustion of cigarettes and other materials and have identified -- well, besides benzopyrene, identified several polycyclic aromatic hydrocarbons, of which benzopyrene is one. Depending

upon which study it is, they have varying levels of carcinogenic potential.

BY MR. TURKEWITZ:

Q. And can you identify those compounds?

A. Do you want specific names for the 100 and some substances?

Q. Are there 100 or so substances that are considered carcinogenic?

MR. BURTON: Object to the form.

THE WITNESS: No. You misunderstood my answer. Polycyclic aromatic hydrocarbons, there's probably over 100 of those alone, in just that class. We're talking about thousands of different substances that are produced during combustion, and out of -- anyway, that's the best I can answer your question.

BY MR. TURKEWITZ:

Q. Has any of the work that you've performed in the past for the cigarette companies been published?

A. It's all been published in reports. As

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far as being published in a peer reviewed journal, which I assume is what you're referring to, some of the work at Borriston Research Laboratories, some of it was published, some of it was not. The work at

CIBA-GEIGY was not, but it was issued in various reports. That's the best I can answer those.

Q. Were those reports disseminated to the public, the ones that were not published in peer reviewed journals?

A. Disseminated to the public?

Q. You say they were "published in reports." Were they published and disseminated?

A. Well, the ones at Borriston Laboratories that were done, for example, for the National Cancer Institute, were provided to the National Cancer Institute and paid for by taxpayers' dollars, and those were available, usually, to the public. The ones that tobacco companies paid for would probably be submitted back to them since they paid for them.

Q. Just focusing now on the tobacco-sponsored work, to your knowledge, has any of that work been published in a peer reviewed journal?

MR. BURTON: Object to the form.

THE WITNESS: I don't know. I have to assume some of the work we did on additives was published, but again, I don't know that for sure because it's been so many years ago.

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BY MR. TURKEWITZ:

Q. As you sit here today, you don't recall

it being published, do you?

A. I don't recall a specific publication. I know some of it was published.

Q. And why was it published?

A. I don't know.

Q. Did you ever receive a copy of the publication?

A. I'm sure I did.

Q. Do you have it?

A. No.

Q. Why not?

A. It's been too many years. I don't keep all that stuff.

Q. Who was the coauthor on that? Were you listed as a coauthor?

A. I believe so. Like I say, we're going back more than 20 years. So a lot of that stuff's fairly old.

Q. Was it one article or more than one article that you recall being published?

A. I don't recall.

Q. Are any of those articles in your list of documents that you're relying on?

A. I don't think so, no.

Q. Are those articles listed in your

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curriculum vitae?

A. They should be.

Q. Do you have your curriculum vitae with you?

A. No, I didn't bring it with me. I think it's already been submitted to you. If they were published under the company's name, they may not be listed in there. Those are the only ones that I'm listed as an author on.

Q. Let me hand you a document that was produced to us earlier. Let's have this marked as Exhibit 5.

(Thomas Exhibit 5 identified.)

BY MR. TURKEWITZ:

Q. Dr. Thomas, I'm handing you Exhibit 5 and ask if you could identify this for the record.

A. Yeah. That's my curriculum vitae.

Q. And when was it last updated?

A. October 28th, 1999.

Q. Is that the last time you've updated it, or have you updated it again since then?

A. I probably updated it since then.

Q. Going back to our previous question, can you identify on your curriculum vitae articles that you have published, any article that you have

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published that resulted from work that you have done for the tobacco companies?

A. The first set of articles that I see on page 14 of this exhibit. These deal with combustion parts and combustion technology and sources of nitrate exposure. This was done for the Department of Energy. I think this was also done at Mitre Corporation, which meant it probably was not directly sponsored by any of the tobacco companies, although it may have been, but I don't think so.

But it deals with the issues that we have been talking about, specifically combustion products, formation of various types of materials during combustion, some of which may or may not be carcinogenic.

On page 15, the one dealing with short-term bioassays to predict functional impairment, this is a set of studies that I conducted for the Department of Defense. Again, it was Mitre. So it's probably not -- I don't think there was any nongovernment financing, or there may have been.

I think, under Mitre's guidelines, they were able to accept private company money, but it may have been put into a foundation and supported through that, but that dealt with testing the pulmonary

system and setting up guidelines for the Department of Defense for understanding damage to the pulmonary

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system, and that was October 1980 when that was published.

There was another one that also dealt with combustion products on that same page, 15, January 1981, which dealt with industrial fuel gas demonstration project. This was a project that involved using gas fuel for production of various substances, including combustion products. For example, activated charcoal.

Q. Before you go any further -- I don't mean to interrupt you, but my question was, if you could identify all articles in your curriculum vitae that resulted from your work sponsored by the tobacco companies, and I think the ones that you identified so far, none of those have been, to your knowledge, sponsored by the tobacco companies; is that correct?

A. No, that's not correct. The reason I identified those is because they may have been, they may not have been; it's been too long ago to know for sure. Some of these could very well have been.

For example, on the one dealing with pulmonary toxicity testing, I had discussions with tobacco companies and received research from them to

produce that. So I think I was trying to be responsive to your question.

Q. Okay. Which one is that that you just mentioned? Is that the one at the top of page 15?

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A. Yes.
Q. At the very top?
A. It's the second one from the top.
Q. When did you speak with the tobacco companies concerning --
A. I have no idea. It's been too long ago.
Q. Do you have any files relating to your conversations and relating to your work on that article?
A. Not after 20 years.
Q. Was that article published in the scientific literature?
A. It was published. It was peer reviewed, the same as a publication. This is not an article. This is actually a whole volume. This is 100 and some pages of testing guidelines, but it's equivalent to a publication.
Q. What was your involvement in that?
A. I was the project director and the senior scientist.
Q. What did that work involve?

A. I managed the project on a day-to-day basis as the project manager. As the senior scientist, I also had responsibility for the quality of the science that was used in the study?
Q. What substances did you look at?
A. I don't remember. It's 20 years ago.
Q. And you said you looked at tobacco?

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A. Yeah. We talked with tobacco companies. We talked with companies that were concerned about air pollution. We talked with companies that produce electricity. We talked with companies that had coal-burning fire plants. Anything that had things people will inhale, we talked with those companies.

Q. What tobacco companies did you speak with?

A. I don't remember.

Q. Did you personally speak with them?

A. Yes.

Q. How many different companies?

A. I don't remember. This is 20 years ago, and it's just one research project out of hundreds.

Q. Did you maintain a file concerning this project?

A. I probably did at the time.

Q. And where were you working at the time of

this project? Were you with the NAS at the time?

A. No. This was at -- like I say, I believe this is at Mitre Corporation. So if Mitre had received money, it wouldn't be directly from the companies. It'd have to go through another source, such as a foundation. Mitre's a nonprofit. So it can't get money from companies directly.

Q. When you left Mitre, did you take your files with you, or did you leave them there?

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A. No. The files were left with the company that I was working for.

Q. So if we wanted to review your files and review communications that you've had with the tobacco companies, would we be able to find that in the files or your file that you had on this work that you did at Mitre?

MR. BURTON: Object to the form.

THE WITNESS: I have no idea. After 20 years, I would doubt that you could find these.

BY MR. TURKEWITZ:

Q. But if the files still exist, would we be able to determine communications that you had with the tobacco companies?

A. Well, the files that I have, the research files, they may or may not have notes. I can't

answer that without looking at the file.

Q. What information were you obtaining from the tobacco companies?

A. Studies that they were doing in their laboratories, how the studies were being conducted.

Q. And did you talk with any tobacco company scientists?

A. That's the people I talked with.

Q. Do you remember any specific individuals that you spoke with?

A. I'm trying to remember back that far. I don't remember which ones I talked with and which

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ones I didn't. It's just been too many years ago.

Q. And did they provide to you reports of studies that they conducted in their own laboratories?

A. Yes.

Q. And were the representations made to you that these are the only studies that they had on this subject?

MR. BURTON: Object to the form.

THE WITNESS: I can't answer that. I have no idea. That wasn't the purpose of talking with them. I wanted to see the types of research that they were doing.

BY MR. TURKEWITZ:

Q. And specifically what type of research were they providing to you? What type of --

A. Laboratory animal studies.

Q. Any other types?

A. In-vitro studies.

Q. Any others?

A. No. I think those are the main ones that were being done then.

Q. During this period of time, did you have any communications with the tobacco company attorneys?

A. Not that I remember.

Q. Were you required to sign any kind of

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release concerning the work that the tobacco companies provided to you?

A. I may have. I don't remember. It was a very common and still common practice, when internal studies are submitted for review, that you'll sign a confidentiality agreement. I may have signed one, I may have not have. I don't remember, after all these years, whether I did or not. I certainly did with other companies on other chemicals that were being produced.

Q. Did you visit their laboratories?

A. Yes.

Q. On how many occasions?

A. I only remember one occasion.

Q. And which company did you visit?

A. It was R.J. Reynolds, in Winston-Salem.

Q. What do you recall about that visit?

A. Talked with some scientists and looked at their studies.

Q. And what did you ask to see?

A. It was 20 years ago. I don't know how many laboratories I visited during that time period. It'd be in the thousands. I can't tell you specifically what I asked to see. The best that I can remember is that they had provided some studies to me that I was interested in, how they were conducted. So I was actually down visiting some friends in Winston-Salem. That's actually how I

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remember it. While I was down there, I went over to the laboratories and visited with some scientific colleagues, and they showed me how they were conducting the studies.

Q. As we are sitting here now, does this help you refresh your recollection as to who you met with?

A. No.

Q. Do you know any of the scientists who have worked at R.J. Reynolds?

A. Yeah.

Q. Who do you know?

A. I guess I could dredge out of my memory names for you. Wally Hayes is one that I've known for years. I believe he was at R.J. Reynolds.

Q. Is Wally Hayes, H-a-y-e-s?

A. Yeah.

Q. Any others?

A. It's A. Wallace Hayes, I believe.

Not off the top of my head. I can dig back through my memory, if you want to do that, and see if I can come up with some names for you. These are scientists that worked there. They're part of the scientific community. I saw them at professional meetings and did peer review on articles for them.

Q. Did you discuss whether or not cigarettes caused lung disease?

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MR. BURTON: Object to the form.

THE WITNESS: I don't know. The purpose of the visit was to understand the types of studies that were being conducted, not to evaluate, as your assumption -- or your question assumes, tobacco for any particular reason. I was interested in the

studies themselves.

BY MR. TURKEWITZ:

Q. Were you interested at all in that time as to whether or not cigarette smoking could cause disease?

A. I've been interested in cigarette smoke ever since I started studying pulmonary disease.

Q. Did you ever ask Wally, Wally, you guys have studied this material for some time now. Does smoking cause lung cancer?

MR. BURTON: Object to the form.

THE WITNESS: Well, I assume that Dr. Hayes wouldn't respond in that way anyway, because that's too vague. He would -- he and I would have a scientific discussion about what the findings are currently and so forth, but I wouldn't ask him that type of question. That would be embarrassing to ask as a scientist.

BY MR. TURKEWITZ:

Q. Well, if you asked him that question, what do you think he'd say?

MR. BURTON: Object to the form.

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MR. MOLSTER: Object to the form.

THE WITNESS: He'd probably laugh and assume it's time to go get some dinner.

BY MR. TURKEWITZ:

Q. Why would he do that?

MR. BURTON: Object to the form.

THE WITNESS: It's not a scientific question. It's not the type of question I would ask another scientist. Scientifically, it's very weak. We know each other better than that. We would talk about science. That's almost on a hearsay level, as you ask it.

BY MR. TURKEWITZ:

Q. Did you have any communications ever with Wally regarding the potential hazards of tobacco smoke, cigarette smoke?

A. We've had communication back and forth in the past. I wrote articles for journals that he was the editor of. Some of those may have dealt with tobacco smoke. I don't remember. It's been too long ago. I don't remember -- like I said, I'm trying to think back on our communications, what types of communications we've had. We've discussed some of these issues. I believe he invited me to a conference once with fellow scientists to look at one of their products.

Q. What conference was that?

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A. It was a conference on the introduction

of what was termed a less hazardous cigarette. It was called "Premier" or something like that. They were presenting scientific information on studies that had been conducted on it, and had invited leading scientists throughout the United States and, I think, worldwide, to come in and look at some of the studies. It was presented as a scientific symposium, and I believe he invited me to attend that.

Q. When was that? Do you recall?

A. Not the year. My best guess is that was mid-to late 1980s when they were introducing that. They had meetings all over the country that had scientists come and look at the information and so forth, and I was invited to one of those meetings.

Q. Any other contacts with Wally or anyone else at R.J. Reynolds?

MR. BURTON: Object to the form.

THE WITNESS: Like I say, I could very well have. Like I say, I've done peer review on articles that have been published by them. I've worked with some of them when they were editors of journals or where I was on the editorial board of journals. I probably had communication, but the specifics of which, over the years, I don't

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remember. I mean, we talked about millions of pieces of communication. That's why it's so difficult to answer that question.

BY MR. TURKEWITZ:

Q. Did you ever request to review from Mr. Hayes -- is it Dr. Hayes?

A. Dr. Hayes.

Q. Have you ever requested to review from Dr. Hayes unpublished reports that discuss and address the hazardous nature or the potential hazards of smoking?

MR. BURTON: Object to the form.

THE WITNESS: Not to my knowledge. My interest has been in published studies.

BY MR. TURKEWITZ:

Q. You mentioned that you communicated with Dr. Hayes and others, I guess, at R.J. Reynolds over the years. Do you have a copy of your communications with folks at the R.J. Reynolds Company?

MR. BURTON: Object to the form.

THE WITNESS: I don't -- if it's been more than three or four years ago, we don't keep files going back more than about three or four years. Our standard operating procedure is to destroy all the files. If it's more recent than

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that -- I don't think it has been -- with Dr. Hayes or any of the others. I think most of my communication with them is in the 1980s. So I don't have files on those.

MR. TURKEWITZ: Dal, we'd like to request any records that R.J. Reynolds has concerning all communications with Dr. Thomas.

MR. BURTON: I'll take that under advisement, Rob. I'm not sure you've established that communications actually took place, and to the extent they did, they may very well have been in the context of editors or panel members sending peer reviewed articles or communications of that sort back and forth to one another. It may have nothing to do with this.

So I will look into it, but I'm not making a blanket commitment to produce what, if anything, we find. I mean, I don't know if, based upon this record, other than Dr. Hayes, when and where to look. What you've established on the record is there may have been communications in the 1980s between unknown scientists in connection with unidentified articles and unidentified scientific boards.

So I will do what I can, but I don't

think the record provides me much of a basis to go look, other than perhaps with respect to Dr. Hayes.

BY MR. TURKEWITZ:

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Q. As we sit here today, can you recall anyone else at R.J. Reynolds who you had contact with?

A. Not offhand.

Q. Can you identify any other publications that involve work that you conducted that was sponsored in any way by the tobacco companies?

A. Let's see. We were up to page 15.

Q. Yes, sir.

A. We're talking about reports that they sponsored; is that correct?

Q. Yes.

A. On page 17, there's a study, "Data Needs for the Risk Assessment of Chemical Mixtures." I believe that was partially sponsored by the cigarette industry, as was the report "Use of Laboratory Animal Models in Investigating Emphysema and Cigarette Smoking in Humans." It was published in Regulatory Toxicology and Pharmacology. I think they also provided some support for the next one, "Epidemiology and Toxicology of Volatile Organic Chemical Contaminants in Water."

Q. So on 17, if you could just identify which ones they are on there, from the top --

A. It's the third down from top, "Data Needs for the Risk Assessment of Chemical Mixtures"; the fifth one down, "Use of Laboratory Animal Models in

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Investigating Emphysema and Cigarette Smoking in Humans"; and then the one below that one, "Epidemiology and Toxicology of Volatile Organic Chemical Contaminants in Water Absorbed Through the Skin."

Q. Which company sponsored those studies?

A. Well, I said partially sponsored those. Those weren't totally sponsored by companies. They provided some money for the sponsorship.

Q. Was it sponsored through a particular organization or trade entity?

A. Some of the work on "Data Needs" was sponsored out of a study for Jones, Day, where we had been asked to review a whole set of information on chemical mixtures, and I believe that money was from R.J. Reynolds. At least that's the best of my recollection. That's 12 years ago. "Laboratory Animal Models in Investigating Emphysema and Cigarette Smoking," again, was partially sponsored by some work for R.J. Reynolds through, I think it was

Jones, Day again. None of those were totally sponsored by cigarette companies.

Q. How about the sixth one? Is that the same, partially sponsored by Jones, Day and R.J. Reynolds, "Epidemiology and Toxicology of Volatile Organic Chemical Contaminants"?

MR. BURTON: Object to form.

THE WITNESS: Again, like I say, to the

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best of my memory, it was. We were doing quite a bit of work on volatile organic chemicals. This one specifically dealt with being absorbed through water, being absorbed through the skin. That's several years ago that work was done.

BY MR. TURKEWITZ:

Q. Who else was involved in the sponsorship of those studies?

A. Let's see. The risk assessment -- let's see, "Data Needs for the Risk Assessment" was Environmental Protection Agency, Food and Drug Administration, and the World Health Organization. The one on animals, investigating emphysema, was EPA. We were doing work for EPA, Food and Drug, and, I think, United Nations environmental development program. The same thing is true for the one after that. This was during about the same period.

Q. Okay. Are there any other articles in your curriculum vitae that were sponsored, in whole or in part, by a tobacco company?

A. I don't see any others I remember any sponsorship for.

Q. Earlier, we were talking about the work that you did for the tobacco companies relating to additives. Do you recall that?

A. Yes.

Q. And did you find any article relating to

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that in your list of articles in your curriculum vitae?

A. It was referenced in some of the work on Chemical Mixtures.

Q. Where is that located?

A. That was in "Data Needs for the Risk Assessment of Chemical Mixtures," where some of that is referenced, page 17, the third one down from the top.

Q. And it references that research that was done back in the 1970s?

A. It refers to the research that was done. I don't know how it's referenced specifically.

Q. As you sit here today, does this refresh your recollection as to who the sponsor was of the

additive work that you did? Was that sponsored by R.J. Reynolds?

A. No, it doesn't refresh my memory. R.J. Reynolds may have been one of the sponsors. I don't think they were the primary one.

Q. Now, you mentioned that some of this work was partially sponsored by Jones, Day. What is Jones, Day?

MR. BURTON: Object to the form.

THE WITNESS: You asked how we received the money. It was through the Jones, Day, Reavis & Pogue law firm.

BY MR. TURKEWITZ:

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Q. What is Jones, Day? Is that a law firm representing the tobacco companies?

A. Yes. That's what, I think, I stated.

Q. Representing R.J. Reynolds?

A. As I mentioned, I thought the money came from R.J. Reynolds.

Q. And was there a specific attorney or attorneys that you recall having contact with at Jones, Day?

A. When we were doing work for Jones, Day, it's getting a little more recent than the older stuff we talked about.

MR. BURTON: I want to be real careful here. If what you're asking about is work that Dr. Thomas did as a nontestifying consultant for Jones, Day, Reynolds will take the position that that is work product and protected from discovery, and I'll instruct the witness not to answer.

MR. TURKEWITZ: I'm just asking who he had contact with.

MR. BURTON: I'm putting you on -- and I'm really cautioning the witness about disclosing the substance of work that may have been done, since the questions are not, at least in my judgment, very precise.

BY MR. TURKEWITZ:

Q. Who at Jones, Day did you have contact

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with, sir?

A. The person I had contact with initially was J.C. McElveen.

Q. Do you recall any others?

A. There's been various ones I've talked with over the time period. One of the other people was Michael Nims.

Q. Any others?

A. There were probably others, but those are two of the major contacts.

Q. And was there anyone at R.J. Reynolds Company specifically who you had contact with regarding sponsorship of these studies?

A. There may have been. I don't remember if there was or not. There could have been. Most of the contact was with Jones, Day attorneys.

Q. Do you know why the contact was with Jones, Day?

A. Well, I can't read into why J.C. McElveen contacted me, other than that he told me that he had talked with various scientists and had asked for a leader in the area of pulmonary diseases that could help him understand some science in some of the articles that they were looking at.

MR. BURTON: Dr. Thomas, I don't want you to disclose the substance of that, to the extent it involves consulting work that you did for the attorneys in connection with ongoing or anticipated

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litigation. I suspect, to the extent that it's been dealt with in specific litigation, you've been deposed and have been testified about that in the past. To the extent it's something separate and apart from that, I'm going to instruct you not to answer.

BY MR. TURKEWITZ:

Q. These articles that we're talking about were published in the 1980s; correct?

A. I believe that's correct.

Q. So your communications would have occurred in the 1980s; is that correct?

A. Yes.

Q. Did you have communications prior to the 1980s with anyone at Jones, Day involving tobacco?

A. Not that I remember.

Q. The communications you had with the Jones, Day attorneys, to your knowledge, did it involve litigation that was pending?

A. Well, I assumed it did because that's why they were talking with me. They were attorneys who wanted information about what was in articles. Beyond that, I really can't answer your question.

Q. Okay. They wanted to know what -- they wanted to know about the published literature and what was out there?

MR. BURTON: I'm going to instruct the

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witness not to answer and go any further. You've established what he believes to be pending litigation, that he was consulted by the attorneys. I don't think it's appropriate to go any further, based upon this record.

MR. TURKEWITZ: Are you making a representation to the court that there was pending litigation at that time?

MR. BURTON: There was certainly pending litigation against the tobacco companies in the mid-'80s.

MR. TURKEWITZ: And that was the reason Dr. Thomas was consulted?

MR. BURTON: That's my understanding. I'm not with Jones, Day. I don't know that for sure. But I'm not going to sit here and let this witness waive a privilege when Jones, Day or Reynolds is not here to protect it. I will verify that, but I'm not going to let him go any further, based on this record.

BY MR. TURKEWITZ:

Q. Do you have communications or correspondence concerning your communications with the Jones, Day attorneys?

MR. BURTON: Object to the form.

THE WITNESS: What period are we talking about?

BY MR. TURKEWITZ:

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Q. In the 1980s.

A. In the 1980s, no.

MR. BURTON: Is the question does he currently have copies of the correspondence?

MR. TURKEWITZ: Right.

THE WITNESS: The answer is no.

BY MR. TURKEWITZ:

Q. You did correspond with the Jones, Day attorneys at that time?

A. I would have to assume so. It may have been telephone conversations, too, but I would assume there had been some letters.

Q. Was this during a period of time that you were employed by the National Academy of Sciences?

A. Yes.

Q. And your consultation with the Jones, Day attorneys, was that as a part of your official duties as an employee of the National Academy of Sciences?

A. No.

Q. Or was that as an outside consultant?

A. That was as an outside consultant.

VIDEO OPERATOR: This is the end of videocassette number 1. We're off the record at 12:00 p.m.

(Discussion off the record.)

(Whereupon, at 12:00 p.m., the deposition was recessed, to be reconvened at 1:00 p.m. this same

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day.)

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AFTERNOON SESSION (1:12 p.m.)

Whereupon,

RICHARD D. THOMAS

resumed the stand and, having been previously duly sworn, was examined and testified further as follows:

VIDEO OPERATOR: We're back on the record at 1:12 p.m. This is the beginning of videocassette number 2.

MR. TURKEWITZ: Thank you.

EXAMINATION (Continued)

BY MR. TURKEWITZ:

Q. Dr. Thomas, you mentioned that at the time you were doing the work for the tobacco companies in the 1980s, you were with the National Academy of Sciences, and I notice from your CV that you were with the National Research Council during that time?

A. Yes.

Q. And you were with the National Academy of Sciences from 1982 through 1994; is that correct?

A. I think that's correct.

Q. While you were with the National Academy of Sciences, did you do any work involving EPA?

A. Yes.

Q. What kind of work did you do?

A. I was at National Academy of Sciences

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about 12 years. Over that time period, I completed about 250 projects, of which probably half were for the Environmental Protection Agency. So there's about 150 projects, maybe 125 projects dealing with such things as air pollution, water pollution, pulmonary diseases, reproductive effects, kidney diseases, so forth.

Q. Did any of the projects involved asbestos?

A. Yes.

Q. Which projects?

A. I was involved in projects with NASA where they were concerned about its asbestos exposure in both hangars for rockets and on space vehicles and in the insulation of some of the older vehicles. I worked for the Department of Defense on asbestos, and also Department of Defense vehicles of various types. I think the largest single study we did resulted in a report called the "Nonasbestos Forum Fiber Report," dealing with occupational exposures in which -- anyway, that's probably the most representative.

Q. Which agency issued that report?

A. It was sponsored -- I believe it was

sponsored by two or three different agencies, but it was issued by the Environmental Protection Agency. Actually, it was issued by the National Academy of Sciences, because they issue their own reports, but

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it was provided to the agency and released from the agency as their sponsored report.

Q. In connection with that work, what was your position?

A. Which work?

Q. The work on the nonasbestos forum fiber report?

A. I was senior scientist, was involved in writing and reviewing sections dealing with health effects of asbestos.

Q. And were you looking at specific types of asbestos?

A. Yes.

Q. What types?

A. Well, we were looking at the various types, chrysotile, amosite, and looking at asbestos from different countries. As you know, there are differences in that, and looked at some things as solubility of asbestos fibers and correlation of length and thickness, that type of thing. So we looked at a lot of different types of fibers. We

also looked some at man-made fibers, which is fiberglass.

Q. In the work that you did, did you have any contact with any asbestos companies?

A. Probably did, but I don't remember any offhand. We often would contact companies when we

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were doing a study, especially on something that was one of their products, and asked them to provide information to the National Academy, and I'm sure that we did that at the time.

Q. Did you do any work involving OSHA?

A. Yes.

Q. What work did you do?

A. During what time period? At the National Academy?

Q. Yes, sir, at the National Academy.

A. I didn't do very much work with OSHA at the National Academy. I did some, to answer your question, dealing with indoor air exposures and, obviously, occupational exposures to specific types of solvents, like petroleum solvents, and then we also did some work on combustion products.

Q. To your recollection, did any of the work for OSHA involve asbestos?

A. I don't believe so.

Q. Did you do any work with NIOSH?

A. Not at National Academy, and not directly. I did indirect work with NIOSH, but it was more chairing meetings or helping sponsor meetings, more professional-type activities.

Q. Are you familiar with EPA's guidance documents regarding asbestos in buildings?

A. Yes.

Q. Do you consider them to be

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authoritative?

A. I think they were produced authoritatively.

Q. Other than the work you did for the tobacco companies while you were with the National Academy of Sciences, did you do any other consulting work, outside consulting work?

A. What was your question?

Q. Other than the work you did for the tobacco companies as a consultant, did you do any other work outside of your work with the National Academy of Sciences?

A. Your question is a little vague.

Q. I can rephrase. I can see how it would be vague.

While you were employed with the National

Academy of Sciences, what other work -- outside consulting work did you do besides the work you did for the tobacco companies?

A. The National Academy of Sciences has a guideline for professional staff, that we stay within a certain amount of time and income, and I think the guideline at that time was 15 percent. So I could spend 15 percent of my time doing outside consulting.

So I did consulting for companies. I did consulting for governments, for the Department of

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Defense, and there were always issues that were not issues being addressed by the National Academy of Sciences at that time, but the tobacco types of consulting that I did was a small part of what I did in consulting.

Q. When you were at the National Academy of Sciences, did you consult under the name "Thomas & Thomas, Inc."?

A. Yes. Thomas & Thomas Technologies, Inc.

Q. What is Thomas & Thomas Technologies, Inc.?

A. That's a consulting firm that my wife and I set up back in the early 1980s.

Q. What is your wife's background?

A. She has a business background and does artistic and custom design types of things.

Q. Does she provide any consulting services in Thomas & Thomas Technologies, Inc., or has she ever?

A. Yes, she has. Well, she's done some of the financial work and put together marketing information and brochures, reviewed reports for their appearance, the type of thing that a professional artist would do.

Q. Did your consulting work involve putting together brochures and things of that nature?

A. Well --

MR. BURTON: Object to the form.

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THE WITNESS: Yeah. I'm not sure what you mean by "brochures." I'm not talking about advertising materials as much as materials that are presenting a scientific issue and may be used by other scientists. These wouldn't be things to sell products or something.

BY MR. TURKEWITZ:

Q. She'd assist you in putting together reports that you would issue; is that what you're saying?

A. That's correct.

Q. And is it just you and your wife in your consulting firm Thomas & Thomas Technologies, Inc.?

A. Over the years, there have been a lot of different people who have worked for Thomas & Thomas Technologies as consultants.

Q. I notice that in your invoice that you submitted in this case, the two invoices, that those were issued by Thomas & Thomas Technologies, Inc.; is that correct?

A. That's correct. By the way, I'd like to get a copy of what was in my folder if you keep the original. That's my folder.

Q. Your invoices indicate that to date, you have been paid over $100,000 for the work you've performed in this case; is that correct?

A. No, that's incorrect.

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Q. The first invoice regarding Falise dated May 24th, 2000, is for $47,864.53; is that correct?

A. This is the amount the company was paid, 47,864.53, in this time period.

Q. And there's another invoice for how much?

A. Let's see. This is $52,608.59. That's what the company was paid. That isn't what I was paid. In fact, my hours -- total hours were 85 hours

over a year's time for a total of about 25,000, but I wasn't paid that. That was paid to the company, and I received a small portion of that.

Q. So the company received over $100,000; is that correct?

A. Yeah. It looks like it's approximately $100,000. I think I added it up there.

Q. And the company you're referring to is Thomas & Thomas Technologies, Inc.; is that correct?

A. That's correct.

Q. Who owns Thomas & Thomas Technologies, Inc.?

A. Let's see. The major owners are myself and my wife, but as I mentioned, there's many people who have worked for it. As indicated on here, I think there are two other people involved in this, and they were also paid.

Q. I see. Do those people have an ownership interest, Mr. Chad McMullin? Does he have an

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ownership interest?

A. Not in Thomas & Thomas Technologies.

Q. Who is the other individual?

A. It looks like there was a research assistant. Let me look at that.

Q. Who would that be?

A. I have to think back. This is last year. It's a year ago. I've had several different research assistants. In fact, it may be a couple. This is the total time spent on research assistants. My guess is probably Debbie Williams, but that's a guess. I'd have to go back and look at the time sheets.

Q. Is Mr. McMullin employed by you as a full-time employee?

A. Yes.

Q. And Debbie Williams, did you say?

A. Uh-huh.

Q. Is she employed as a full-time employee?

A. Yes.

Q. Does Thomas & Thomas Technologies, Inc., employ anyone else? Are there any other employees besides you and your wife and those two individuals?

A. There are several people who work for Thomas & Thomas, either as part-time or full-time employees. We had over 150 people that worked for us in some type of basis. John Meagher, for example,

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works for us part-time.

Q. When was Thomas & Thomas Technologies, Inc., formed?

A. Again, this is based on memory. I'd have

to look at the corporate documents, but I think it was about 1982, maybe 1981.

Q. You mentioned that Thomas & Thomas Technologies, Inc., has done consulting work for other companies, government, DoD.

A. Uh-huh.

Q. Can you identify the types of companies that you do work for?

A. We've done work for Dow company, for Dupont, CIBA-GEIGY Corporation, for -- let's see. Those are the -- for ICI. Let's see, pharmaceutical companies, Pfizer. We have a list of, I think it's something like 200 different companies and the years we've worked for, almost 20 years now. Most of the companies that make chemical or pharmaceutical products of some type and require a scientist to analyze scientific studies.

Q. You mentioned governments. Outside governments? Foreign governments?

A. Yeah. I've done work for the German government, for the World Health Organization, for the European Union, for the Polish government, for the royal government of Thailand, the royal kingdom of Thailand, I think they called it, the Thai

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governments I've worked with, the Dutch government, Netherlands.

Q. Did any of that work involve asbestos?

A. Some of the work for the Dutch government did several years ago, and I think the German government did as well.

Q. What was the nature of that work?

A. The Dutch government was concerned about asbestos used in old ships for insulation of pipes, how to properly dispose of it and decommission ships. The German government had to do with -- there were two different issues. One had to do with levels of asbestos in indoor air. The second one had to do with -- let me think for a minute -- asbestos and radon in mining operations.

Q. Did any of your work at NAS or your consulting work at the time you were with NAS involve toxicological studies involving asbestos?

A. I'm not sure. I'd have to go back and look. I didn't do any large studies involving the toxicological work on asbestos other than the ones I've just mentioned. I did do some peer review and that type of thing. I typically write a couple chapters a year in textbooks. I may have had some information there as well. But there were no major

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jobs other than the ones I mentioned.

Q. Which related to other things, asbestos in the air, types of asbestos fibers?

A. Uh-huh.

Q. You mentioned that there are guidelines for professional staff at NAS for consulting work.

A. Uh-huh.

Q. Were you required to submit any kind of written request to do consulting outside of NAS?

A. The procedure that was followed -- well, the answer is yes, but it was done through a different procedure. I was considered a principal scientist at National Academy. That's the same as a principal in a law firm. Principal scientist had, on a yearly basis, to submit a list of who they were doing consulting with, what they were doing, and how much they were being paid.

And then we sat down with an associate director or some other general director within the National Academy of Sciences and reviewed it in detail each year to make sure there's no conflict of interest with work we were doing there. And I did that every year I was there.

Q. Do you have a copy of your submissions to the National Academy of Sciences?

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A. No, no. That was some time ago. It's over -- we usually get rid of those old files.

Q. And would you then receive some kind of written approval from NAS to continue with the consulting work?

A. Usually not. What we would do is review it and see if there were any areas of potential conflicts, and we would talk about how to resolve it, and I would resolve it. Either that, or I would not stay at the National Academy. So -- but throughout those time periods, I didn't have any conflicts of interest. So I didn't have any difficulty sitting down and following the guidelines.

Q. Have you ever been in a situation where you were not permitted to publish a paper that you wanted to publish?

MR. BURTON: Object to the form.

THE WITNESS: I'm not sure what you mean by that. Often, scientists would like to publish a paper, and for various reasons you can't get it published or somebody won't accept it or maybe it needs to be redone.

BY MR. TURKEWITZ:

Q. Have you ever been in a position --

A. I don't know what you mean by your

question.

Q. Okay. Have you ever been in a position

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where you were not permitted to publish a paper by the sponsor of the work that had been done in a situation where you wanted to publish the paper?

A. That only occurred once, and that was with CIBA-GEIGY Corporation, unrelated to this case. It had to do with a pesticide product, and they didn't want me to publish it until after the product was registered. I agreed not to publish it because they were afraid it would give an advantage to those with competing products. I can see why they wanted to do that, and I agreed to it. So after it was registered, then a year or so later, they published the paper.

Q. Have you ever permitted an attorney to edit or change anything that you proposed to be published in a paper?

MR. BURTON: Object to the form.

THE WITNESS: What do you mean by "edit"? You mean give me comments?

BY MR. TURKEWITZ:

Q. Yeah, to review a paper and make changes on your paper.

A. Not on my paper, no. I've had attorneys

over the years, for one reason or another, even when I was at National Academy of Sciences, that reviewed papers and gave me suggestions on issues that they thought were important legally or even editorial issues, but it was up to me to decide whether I was

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going to incorporate those or not.

Q. So you've never permitted an attorney to edit, actually make changes in your paper before it would be allowed to be published?

A. Never have, no.

Q. Do you think it would be wrong for an attorney to do that?

MR. BURTON: Object to the form.

THE WITNESS: For who?

BY MR. TURKEWITZ:

Q. Would it be wrong -- would you consider it unethical in your situation for an attorney to make changes in a paper, require that you make certain changes before it would be allowed to be published?

MR. BURTON: Object to form.

THE WITNESS: I can't answer that, because I'm not sure what you mean by "ethical." Maybe what I can do is just say that in the scientific research that I have conducted and

analyzed myself, I have the authorship and responsibility to publish it as I see fit.

BY MR. TURKEWITZ:

Q. In a situation where if you felt it important that a paper be published and that the subject matter involved health concerns, do you feel that it -- would you allow a sponsor to prevent that

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from being published?

MR. BURTON: Object to the form.

THE WITNESS: I don't know how to answer that. You'd have to put it in some kind of context. You'd have to rephrase it. I really don't know how to answer that question.

BY MR. TURKEWITZ:

Q. What don't you understand about it?

A. The question assumes several things, and I don't know what your assumptions are. Let me put it this way: If there was a report on health effects that was important to the public health, it would be important and the information should be published.

In fact, there's laws in the United States now that say that. If a company produces material that may be hazardous to public health, depending upon which agency it is, say, EPA should be notified, and I think that's appropriate and proper,

and we want to try to protect public health.

Q. When you were doing work for the tobacco companies back in the 1970s and 1980s, did you ever meet with lawyers associated with the firm by the name of Shook, Hardy & Bacon?

MR. BURTON: Object to the form.

THE WITNESS: I don't know. Not to my knowledge, but could very well have.

BY MR. TURKEWITZ:

Q. Are you familiar with the Council for

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Tobacco Research?

A. Yes.

Q. And have you met with any representatives for the Council for Tobacco Research?

A. When I was at National Academy of Sciences, I had some visit me from time to time. I think that's the only time I've really had any discussions with them.

Q. Who did you meet with?

A. I don't remember.

Q. What did it concern, do you recall?

A. We had studies dealing with some issues of smoke and indoor air quality or smoke and passenger airplanes. They wanted to know what our thinking was. So they came and visited me. It was

at their request, not mine.

Q. Was there any work that was conducted as a result of those visits, to your knowledge?

A. No. It was very common at the National Academy for interested organizations to come in and wish to provide information on products. If the product being considered is cigarettes or pesticides or water conditioner, we often had industrial people come in or people from foundations come in that represented research being done by many companies that wanted to provide the information. So that was not uncommon.

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Q. Did you have any contact with anyone from the Council for Tobacco Research in any of your outside consulting work for the tobacco companies?

A. Not in any of the consulting work.

Q. Have you, or any of the companies you've been affiliated with, received any monetary grants from the Tobacco Institute?

A. No.

MR. BURTON: Object to the form.

THE WITNESS: I have to say not to my knowledge.

BY MR. TURKEWITZ:

Q. With regard to the work you did as an

outside consultant for the tobacco companies and their attorneys in the 1980s while you were at the National Academy of Sciences, how much money did you or your company, Thomas & Thomas Technologies, earn as a result of that work?

A. In the 1980s?

Q. Yes, sir.

A. I'm not sure. It'd be less than a million dollars would be my guess. I don't think we've got records that go back that far now, but that would be my guess, somewhere less than a million dollars. Like I say, this was really a minority or a small part of the amount of work that we did.

Q. Do you have records that would be able to determine how much money you earned during that

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period of time?

A. I didn't earn very much at all, but the amount of money that was paid to the company, no, we don't, not going clear back into the '80s. I think it's seven years that we maintain financial records for the IRS. I don't even know if the billing records would be in that.

I'm not a financial person. I'm a scientist.

Q. But it's your recollection that it was

something less than a million dollars?

A. Yeah. That's my best guess. It could have been less than half a million, for all I know, but I'm sure it wasn't more than a million. It's approximately eight years, nine years worth of work.

Q. And that is work that was done through -- mainly through counsel for R.J. Reynolds?

A. Yeah -- well, you mean through Jones, Day? Is that what you're asking?

Q. Yes, sir. Yes, sir.

A. I think most of it was through Jones, Day. We may have been contacted by other firms. I don't know how they were paid. All I know is they paid our bills.

Q. So if we can't get that information from you, then we should go to Jones, Day and ask them?

MR. BURTON: Object to the form.

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THE WITNESS: I assume so.

MR. TURKEWITZ: Is there anyone here from Jones, Day?

MR. BURTON: No.

BY MR. TURKEWITZ:

Q. Now, in this case, you're testifying on behalf of R.J. Reynolds; correct?

A. Yes.

Q. Have you testified on behalf of any other tobacco companies in the tobacco litigation?

A. I don't know what you mean by that question. We're getting into some legal issues. In some of the cases I've testified in, there were several tobacco companies named.

Q. Were you retained by all the companies?

A. Like I said, I don't know the specifics -- legal aspects of how that was done. It was Jones, Day that had asked me about it. It may have been another law firm. They may have represented even another company.

Q. The next question I was going to ask, how did you originally get involved in the tobacco litigation?

A. Well, I mentioned this morning that J.C. McElveen approached me and asked me to provide analysis to scientific papers, and I did that, and that continued --

MR. BURTON: I caution the witness not to

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disclose attorney work product. To the extent that's where you're going, I instruct the witness not to answer.

BY MR. TURKEWITZ:

Q. I'm talking about the litigation here.

You're a testifying expert. You're no longer an expert who has been specially retained. So I think we're talking about a different situation.

MR. BURTON: You asked him about two different things. Are you asking about in this case or in the '80s? If you're asking about in the '80s, I think that he has provided consulting work separate and apart from his testifying work, and I'm not going to let him get into that. If you're talking about this case, you're free to inquire.

BY MR. TURKEWITZ:

Q. Let me ask you, the work that you did back in the '80s on behalf of Jones, Day, did that have any relationship at all to the substance of what you're testifying to in this case?

A. I can't answer that. It's too vague. I don't even know what you mean by that.

Q. Let me ask you, when did you put together your list of articles that you rely on in this case?

MR. BURTON: You're talking about this case?

MR. TURKEWITZ: Yes.

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THE WITNESS: This case, I put that together the same time I did the report. So it would be last year.

BY MR. TURKEWITZ:

Q. Was that the first time that you put together such a list?

A. No.

Q. When did you first put together a list containing the articles that you relied on?

MR. BURTON: In this case or in any other case?

MR. TURKEWITZ: In any other case.

BY MR. TURKEWITZ:

Q. I assume that we're talking about pretty much the same list of what you rely on in your testimony in tobacco litigation, and my question is, when did that list first originate? When did you first begin putting that list together, and how did you go about doing it?

A. I can't answer that question very accurately. The first one we discussed this morning I testified in was Karbiwnyk. I don't know if there was a list for that or not. That may have been the first time a list like that was put together. This is different from the other lists because this deals specifically with this case.

Q. Okay. When you testified in deposition in the Karbiwnyk case -- that's the Florida,

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Jacksonville case; right? When you first testified in that case, did you -- had you already prepared a list?

A. Like I say, I assume that there was a reliance list of some type that I put together for that, and that may have been the first time I put together such a list.

Q. But you don't recall?

A. No, I don't recall. I'd have to go back and look at the record to see.

Q. And the list that you have here today is a list that was taken from the list that you prepared that you used in the Karbiwnyk case; is that correct?

MR. BURTON: Object to form.

BY MR. TURKEWITZ:

Q. Or is it different?

A. The list that I put together for this was put together for this report, and the articles I selected, I selected based on what I thought were important ones for this case.

Q. Does the list that you have here today, that you're using in this case, how does it differ from the list that you had for the Karbiwnyk case?

A. If you want to give me a copy of the

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Karbiwnyk one, we could go through, I guess, and point out the articles that are the same and the articles that are different.

Q. So you're saying that you amend that list for each case?

A. Well, you have to have somewhere to start, and I will look on my computer and see what I've got listed. I know the articles very well. And then started adding to that or take away from that, depending upon what I think the issues are in the case.

I don't start cold every time I put together a list if it's the same type of subject I've dealt with for years. This is an area I do research in. I've been involved in this for over 20 years. So I don't start from scratch every time I do something.

Q. So is it your testimony that for each one of the cases in which you are consulting as an expert in the tobacco litigation, that you review your list and amend it?

A. I'll review the lists that are available at the time. It's not the list, but the lists that are available at the time. I may start a new list. In fact, I have on some issues because there are

different needs or different requirements. So it's

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going to vary from case to case. There may be one or two lists that are similar, but there's going to be others that are completely different.

Q. When you first began consulting for Jones, Day in the 1980s, did you have any discussions about testifying as an expert in the litigation?

MR. BURTON: I'm going to instruct him not to answer that. Rob, I've been patient on this. We're here on this case. You have yet to mark this report. He's willing to answer questions about this case. He's explained to you how he's prepared his report. I am not, without Jones, Day lawyers here and without knowing the specifics of what the reports and what the testimony and what the nature of the consulting arrangement was, going to let you inquire into what I believe to be protected subject matter.

MR. TURKEWITZ: Well, we disagree that this is protected where we have a witness who is a testifying expert, and I'm probing into how he got involved as an expert and the basis for --

MR. BURTON: And I am not --

MR. TURKEWITZ: I'm not finished yet, excuse me.

And the basis for him being selected as

an expert and based on the work he has done, how that work originated and the genesis of that work that led to the report. And I believe I'm entitled to probe

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that.

MR. BURTON: I haven't stopped any of that. What I am going to stop is when you ask him the substance of communications he had with the Jones, Day lawyers in the '80s when the first time he has testified, he has said, is in 1994. Now, I'm going to instruct the witness not to answer, and you can do with what it is. I'm just saying we're here in the year 2000 with respect to the Falise case, which has to do with allegations of asbestos and its interaction with tobacco. We haven't touched on any of that. We've been at this now for almost three hours, and what we seem to be trying to be doing is trying to invade the attorney work product doctrine with respect to a consulting arrangement that happened 15 years ago, and without the benefit of the lawyers that employed this witness, and I'm not going to let it happen.

BY MR. TURKEWITZ:

Q. Dr. Thomas, do you have an arrangement with the attorneys in the tobacco litigation?

MR. BURTON: Object to the form.

THE WITNESS: I don't know what you mean by "arrangement."

BY MR. TURKEWITZ:

Q. You're testifying here today on behalf of R.J. Reynolds; is that correct?

A. Yes.

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Q. And your contact is with the attorneys for R.J. Reynolds; is that correct?

A. That's correct.

Q. You don't deal with anyone directly at R.J. Reynolds, do you?

A. No.

Q. Do you have an arrangement with the attorneys representing R.J. Reynolds regarding your testimony in the tobacco litigation?

MR. BURTON: You mean has he been retained in this case?

MR. TURKEWITZ: I'm asking if he has an arrangement.

MR. BURTON: I'm going to object to the form of the question. I don't know what you mean by "arrangement." He's a testifying expert. He's been notified as such. We've produced his billing records. What else do you want to know?

BY MR. TURKEWITZ:

Q. Do you have an understanding concerning the testimony that -- how you will be retained for each case?

MR. BURTON: Object to the form.

THE WITNESS: I don't even know how to answer your question other than when they need help or when they would like to talk with me about some of these issues, they will call me on the telephone. At

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some point, there will be an agreement that I'm -- and they will ask me if I'm willing to work on a particular case. That's what I did with Falise.

BY MR. TURKEWITZ:

Q. And do you charge a particular fee for your consulting work?

A. Yes, I do.

Q. What is your fee?

A. It's $350 an hour.

Q. Does your fee differ in any way as a consultant based on the type of work you do or based on the client?

A. No, it doesn't.

Q. It's $300 an hour across the board?

A. It's across the board. There is one difference, and that is on government contracts it has to be handled differently because of government

guidelines, but those are normally negotiated on a task basis rather than an hourly basis.

Q. And again, you bill your time when you testify through INCET, your company? I will strike that.

Let me ask you this: I notice on your curriculum vitae that you are the director of the International Center for Environmental Technology?

A. Yeah.

Q. Is that correct? Okay. And that's separate from Thomas & Thomas Technologies, Inc.; is

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that correct?

A. Yes.

Q. Do they share the same address?

A. We do have some offices in the same building. It's on a different floor.

Q. Do these organizations share the same officers?

A. No.

Q. Are there any officers who are in both companies?

A. Well, I'm the officer in both companies.

Q. Are you the CEO of both companies?

A. Yes.

Q. Do you own both companies?

A. Either I or others do.

Q. Who else owns the International Center for Environmental Technologies besides yourself?

A. It's basically my family who owns it.

Q. You and your wife?

A. Uh-huh.

Q. Anyone else in your family?

A. That own it? No.

Q. And in the past, have you not billed some of your time in the tobacco litigation through the International Center for Environmental Technology?

A. Yeah, some of the time has been billed through there.

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Q. And that organization, your organization is also known as INCET; is that correct?

A. No. I think you've got the organizations confused.

Q. The International Center for Environmental Technology, what is that?

A. There is an International Center for Environment and Health. That's ICEH. I think that's what you're referring to.

Q. ICEH?

A. Uh-huh.

Q. And you and your wife own that company?

A. That is actually owned by Dr. George Conus.

Q. That's a whole separate company?

A. That's a separate company.

Q. INCEH.

A. ICEH.

Q. ICEH. Does that also share the same address?

A. There's some of the same functions there. It's not sharing the same address. You have to understand this is an office building with several offices in it. INTERCET is on one floor, Thomas & Thomas is on another floor. That's not the only office for Thomas & Thomas. In fact, that's not the main office. And ICEH has some project work there and has some project work in Arlington.

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Q. Do you have a position or hold a position in ICEH?

A. Yeah. I'm a director of ICEH.

Q. What is the purpose for the International Center for Environmental Technology?

A. That's to deal with environmental -- mainly international public health issues and applying environmental technology to address mainly environmental issues.

Q. Can you tell me as we sit here approximately how many cases, tobacco litigation cases, you've been involved in to date?

A. What do you mean by "involved in"?

Q. Well, in which you've been retained as an expert.

A. I can't tell you how many. Like I say, I've testified in three that you have there.

Q. Looking at your report, which is marked as Exhibit 2, you indicated that you included in here trial testimony; is that correct?

A. That I did what?

Q. That you listed your trial testimony in the tobacco litigation.

A. Yeah, this is prior testimony.

Q. Do you recall testifying in July 1999 in a trial in Louisiana in a case called Gilboy?

A. Uh-huh.

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Q. Is that listed?
A. No. This was done, I think, before that was -- before I testified.
Q. Can you recall any other trials in which you've testified as we sit here today?
A. We're talking about what types of trials?

Q. Asbestos -- excuse me, tobacco.
A. There's the three on here, and the most recent one, Gilboy.
Q. Have you ever entered a question and answer prep session with the tobacco attorneys concerning your testimony as an expert?
MR. BURTON: Object to the form of the question.
THE WITNESS: A question and answer prep session?
BY MR. TURKEWITZ:
Q. Yes, sir.
A. I'm not sure what you mean by that.
Q. Have you ever met with the attorneys for the tobacco companies and discussed your testimony, rehearsed your testimony?
MR. BURTON: Object to the form.
THE WITNESS: I've met obviously with attorneys who represent the tobacco companies during the litigation to discuss issues in the case and to discuss the types of things that I would present. I

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think that makes sense. That's what they're asking me to do, is present scientific information.

BY MR. TURKEWITZ:

Q. In that, they would ask you the questions

you would give on the stand and you gave the answers you would give on the stand?

A. No. These were really a discussion of what types of issues were and so forth and how I felt about those issues. I sometimes have prepared materials to present in court.

Q. So are you saying you've never sat down with the attorneys and just did a run-through of your testimony?

MR. BURTON: Object to the form.

THE WITNESS: A run-through of my testimony? No, my testimony is not written before I testify.

BY MR. TURKEWITZ:

Q. So you have never heard the questions you will be asked before you've given the testimony?

A. That's not what I said. What I said was I assumed the attorneys themselves have an outline as to what they're going to ask me.

Q. And you've never been shown any outlines?

A. I've never been shown any outlines.

Q. And you've never been asked the questions that will be asked of you before you testified?

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A. The attorneys have asked me questions. That's what I deal with. I try to answer questions

on scientific studies or how I feel about a particular issue.

Q. Are those the same questions that they would ask you on the stand?

A. Yeah, they'd be the same. I am a scientist, I'm called to testify as a scientist. It would be the same types of questions they would ask me on the stand.

Q. I notice that you listed another case in your report, Davidson et al. versus WD-40. That case did not involve tobacco; correct?

A. Yeah, it did not involve tobacco.

Q. Have you testified as an expert in any other cases that did not involve tobacco, besides the WD-40 case?

A. Yes.

Q. What other cases?

A. I testified for the U.S. Department of Justice on two different occasions on dealing with pesticide exposure and a federal program representing the U.S. government and the Environmental Protection Agency.

Q. Who was the defendant in those cases?

A. They were normally environmental groups who brought suit against the government.

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Q. Okay. Then who were the plaintiffs in those cases?

A. The plaintiffs were the federal government and the Environmental Protection Agency. I don't know if the Department of Justice qualifies as a plaintiff or not, but they're the ones that asked me to testify.

Q. I thought you said -- and I apologize if I misunderstood, but I thought you said that they were brought by environmental groups against the government.

A. Uh-huh.

Q. Do you recall the environmental groups that brought action?

A. We're talking about two different ones, that were plaintiffs in these cases. One that always gets involved on pesticides is called NCAP, national organization for something use of pesticides. There are groups like the Wildlife Conservatory and -- groups like that. I actually don't remember which groups were involved. I just know they were environmental groups.

Q. What pesticides were at issue?

A. These were pesticides that were used in federal programs of various types. The two

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different -- suits were a bit different, but for example, the one suit dealt with pesticides used to kill weeds or eradicate weeds on federal lands. They call them pesticides, but actually herbicides mostly.

Q. And what was the substance of your testimony on behalf of the government in these cases? What position were you taking?

A. Well, my position deals with how the science was done, and the position in both of those cases was that the science had been properly been done, that I had reviewed the materials that followed current scientific guidelines, and that the risk assessment and public health analysis and so forth, statistical work was correct.

Q. Do you recall when you testified in those cases?

A. I don't remember the dates. One was, I believe, mid-1980s. One was either late 1980s or early 1990s.

Q. Can you think of any other cases in which you've testified as an expert besides these two pesticide cases?

A. We're talking about court cases?

Q. Yes, sir.

A. I've testified in administrative hearings and that type of thing on several occasions, but it

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usually involves a product, some type of licensing.

In court cases -- I have to think about this, because I was only asked the last four years, not clear back into the 1980s. I've testified in Richmond, I believe, late 1980s, early 1990s for the Department of Justice and the National Institute of Health. They were defendants, and the plaintiffs were some people that claimed to be harmed by a vaccine. But I'm not sure of the date. I'd have to go back and look.

Q. Do you recall the results of these cases in which you've testified?

A. What do you mean by "results"?

Q. For instance, in the pesticide cases, were those cases settled, or was there --

A. These were in federal court, and the judge decided in favor of the defendants.

Q. And how about the vaccine case? Same thing?

A. I believe so. I don't remember the vaccine case as well.

Q. Have you ever testified on behalf of a plaintiff in any case?

A. Yes. Davidson was a plaintiff.

Q. And you testified on behalf of the plaintiffs who were exposed to the WD-40?

MR. BURTON: Object to the form.

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THE WITNESS: This wasn't a group of plaintiffs. This was a single individual, Jeffrey Davidson, that was exposed to WD-40 and actually worked at the Environmental Protection Agency and knew me by reputation and asked me if I would be willing to testify.

BY MR. TURKEWITZ:

Q. The International Center for Environmental Technology, besides you and your wife, who else does it employ?

A. Do you want a list of people? There's about 15 people.

Q. Okay. Does it employ the same people that we saw at Thomas & Thomas Technologies, Mr. Chad McMullin?

A. Chad McMullin now works mostly with International Center for Environmental Technology. I think he still does some work for Thomas & Thomas, but mostly for the other one.

Q. And there was another individual, a woman that you named?

A. Let's see. Debbie Williams, she does, I think, all of her work now for the international center or for another organization called Asclepiusnet.

Q. Scorpinsnet?

A. Asclepiusnet.

Q. How do you spell that?

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A. You can look it up in the dictionary. Asclepius is the Greek god for health. He's the one that holds the thing with the snake on it.

Q. Who is the owner of that organization?

A. I am.

Q. Is that one of those www.coms?

A. Yep. It's not on yet, but it will be.

Q. What other companies do you own besides Thomas & Thomas, International Center for Environmental Technology, Asclepiusnet? What other companies?

MR. BURTON: Object to the form.

THE WITNESS: What do you mean by "own"?

BY MR. TURKEWITZ:

Q. What other companies are you the principal or majority shareholder of?

A. There's a Canadian company that's Bioresponse Limited.

Q. How do you spell that?

A. B-i-o-r-e-s-p-o-n-s-e, Bioresponse, Limited.

Q. When did you form -- when was that company formed?

A. About 1986 approximately.

Q. And where is it located?

A. The head office is in Halifax, British Columbia.

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Q. Has Bioresponse done any work relating to tobacco or tobacco litigation?

A. Yes.

Q. What work has Bioresponse done?

MR. BURTON: I'm going to caution the witness to be careful about the disclosure of any work that it may have done pursuant to a nontestifying, consulting role for Reynolds or any of Reynolds's attorneys. If it falls within that category, I'm going to instruct you not to answer.

THE WITNESS: Yeah, it falls within that category.

MR. TURKEWITZ: Again, we object to having the witness, who is a testifying expert, raising that as an objection.

BY MR. TURKEWITZ:

Q. Sir, do you -- who at -- I'm sorry.

MR. TURKEWITZ: Go ahead, if you have anything to say.

MR. BURTON: I've made my position clear. We're here on this case, and we're prepared to answer questions on this case, and apparently we're not going to get to this case at the rate we're going.

MR. TURKEWITZ: No, we will, and we are. This has been very relevant.

BY MR. TURKEWITZ:

Q. With regard to Bioresponse, who at

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Bioresponse has been involved in that work for R.J. Reynolds?

A. First, you're assuming it was R.J. Reynolds, which is -- maybe a false assumption. The person, the individual there who has done most of the work is Dr. Torgy Vigerstad. There have been other people over the years involved as well, probably up around 20 people.

Q. And are you going to follow counsel's advice and not respond to any questions regarding the nature of the work?

A. Well, I mean, you can go to the Web site and look up Bioresponse Systems. It's on the Web

site. It'll tell you what to look for. It's mostly environmental work. It's very little for tobacco companies. In fact, I don't think they've been doing any recently.

Q. But my question is, what work have you done?

MR. BURTON: And I will instruct the witness not to answer the question to the extent it involves nontestifying consulting work done for Reynolds, some other tobacco companies or any attorneys of the tobacco company.

THE WITNESS: Yeah, I think it falls under that.

BY MR. TURKEWITZ:

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Q. Do you recall the name of the company that Bioresponse conducted work for?

A. Bioresponse conducted work for? It's so vague. I think -- like I say, the work that they did was mainly for law firms and it was consulting work.

Q. And do you recall the names of the law firms?

A. Not all of them, because I'm not as directly involved in that one. I do know they work for Jones, Day, but I don't know about other law firms.

Q. Do you recall the time period in which the work was performed for Jones, Day?

A. No, I really can't answer that. I'd have to go back and look through their reports to see.

Q. What other companies do you have an interest in?

MR. BURTON: Have we changed to have an interest in from have a majority position in?

BY MR. TURKEWITZ:

Q. What other companies do you have an ownership interest in?

MR. BURTON: You're not talking about like stocks on the stock market?

BY MR. TURKEWITZ:

Q. No, I'm talking about companies where you have a majority ownership interest in or in which you are a principal.

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A. I think those are the companies that I have a majority interest in.

Q. Are there other companies that you are a director of besides the ones that you've already mentioned?

A. There's no other companies that I'm a director of.

Q. Are you an officer in any other company?

A. Let's see. Other than ones -- what do you mean by "officer"? You mean like a member of the board?

Q. Member of the board or --

A. An adviser of some type? I mean, you're so vague in your questions I don't even know what you're asking me sometimes. I'm sorry.

MR. BURTON: "Officer" is very different, as you know, Rob, from "adviser," so --

BY MR. TURKEWITZ:

Q. Let me ask it this way. I understand what you're saying. Are you affiliated with any other companies besides the one you've already --

MR. BURTON: I'm going to object to the form. What do you mean by "affiliated"?

BY MR. TURKEWITZ:

Q. Do you have any question about my wording?

A. Yeah, I do. I would say probably 250

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companies I'm affiliated with in some advisory role, including some minority stock ownership or something like that, but I'm not going to give you a list. It's with Merrill Lynch. I'm sorry. Your question's almost silly.

Q. Are you -- I may have asked this before,

but are you a director --

A. Can we take a break for a minute?

Q. Sure.

VIDEO OPERATOR: We're off the record at 2:19.

(Recess.)

VIDEO OPERATOR: We're back on the record at 2:25.

BY MR. TURKEWITZ:

Q. I asked you earlier if you are an officer in any other company.

A. Yes.

Q. Other than the ones that we've discussed. Do you recall any other companies in which you are an officer, whether it be --

A. I'm not a voting officer in any other company.

Q. Okay. Are you a nonvoting officer in another company?

A. I am as an adviser.

Q. Does that make you an officer of that company as an adviser?

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MR. BURTON: Object to the form.

THE WITNESS: In some small companies, it does.

BY MR. TURKEWITZ:

Q. Can you give me approximately how many companies you serve in that capacity?

A. Currently, probably two.

Q. What companies are those?

A. One company is -- I can't tell you. It's still under discussion. There's a patent that's under negotiation right now. The other company was recently sold, is Clonetics.

Q. Clonetics?

A. Clonetics, like clone.

Q. It was recently sold. Are you no longer serving in the capacity as an officer/adviser?

A. No.

Q. Do you own any stock in any tobacco companies?

A. No, I don't.

Q. How much have you or the companies in which you are affiliated with received from the cigarette industry in the tobacco litigation since 1994?

A. Since 1994? It's really hard to say. I don't know from that time period. About the best I could do is just guess.

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MR. BURTON: I don't want you to guess,

Dr. Thomas.

THE WITNESS: Okay.

BY MR. TURKEWITZ:

Q. Can you give me your best estimate?

A. I would have to go back and look from that time period forward to see. I don't know the answer to that.

Q. Do you have records that would allow you to make that determination?

A. Let's see. What is it? We probably have records back, like I said, I think it's seven years we keep most of the records. I'd have to see if those records are maintained past three years, though. We keep IRS records for seven years.

MR. TURKEWITZ: Can I -- I'd like to request that information. Would you be willing to provide that information to us?

THE WITNESS: If it exists -- I'll have to talk with counsel, but if it exists, then we can discuss it. I'm not even sure that that exists past the last three years.

BY MR. TURKEWITZ:

Q. But would you be willing to provide that information to us if it exists?

A. Based on our discussion, subject to our

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discussions.

Q. I'm not sure if I understand what that means, though.

A. Well, I've never been asked to do that before. It's kind of a strange request.

MR. BURTON: I will talk about it with the witness, and I will get back to you. We understand your inquiry.

BY MR. TURKEWITZ:

Q. By the way, what percentage of your time is spent consulting in the tobacco litigation currently?

A. It varies from month to month. Currently, I couldn't tell you. If I just took the summer, it's probably about 30 percent, 20 percent, just because there's several things that's active. It may drop off to none, and it may go up to half my time or more on this case, like I said, there's only 85 hours that have been spent in the last year. That's kind of an indication that it varies tremendously. That's not very much time in the whole year.

Q. How many hours?

A. I think 85 hours is what we saw this morning from the invoices. That's over a year's

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time. So that's not very much.

Q. But that's just this one case; right?

A. That's this one case, but you're asking me currently. That's about the best I can do, say based on current information, that's the best I can give you.

Q. Have you been retained in cases by the tobacco company, by R.J. Reynolds in cases where you have not yet testified in deposition or trial?

A. Yes.

Q. How many?

A. I don't know for sure, because some of them I've just indicated that I'm interested or maybe not interested. My best guess or best estimate is maybe three or four.

Q. Does anyone at Thomas & Thomas or the International Center for Environmental Technology also act as an expert witness for -- strike that.

Is there anyone else employed by Thomas & Thomas or the environmental -- International Center for Environmental Technology who testifies as an expert witness besides yourself?

A. Yes, there are.

Q. Who else?

A. Torgy Vigerstad, Dr. Vigerstad that I

mentioned.

Q. What's his background?

A. I think John Meagher does as well. There

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may be some others. I'd have to go back and look in the records to see. This is something scientists often do, or engineers, and these are leading professionals. So I wouldn't be a bit surprised if they haven't in the past, too.

Q. Have they testified in the tobacco litigation?

A. I don't know. I don't think so.

Q. Torgy Vigerstad, is that Dr. Vigerstad?

A. Yes.

Q. What is his background?

A. Toxicology, molecular biology, ecology, and radiation.

Q. And John Meagher?

A. He is a certified industrial hygienist. His background is industrial hygiene.

Q. Has he testified in the tobacco litigation?

A. Not to my knowledge.

Q. Do you smoke cigarettes?

A. No.

Q. Have you ever?

A. No.

Q. You mentioned you have children. Have you ever advised them not to smoke cigarettes?

A. Yes.

Q. Why?

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A. I think the public health information is sufficiently strong that it's an increased health risk, and I think any intelligent person would try to reduce the risks, just as we -- I advise them to drive carefully, I advise them to get exercise and so forth. I want them to be healthy.

Q. Have you ever spoken before any legislative body concerning tobacco and health?

A. Not directly. I testified before Congress on marijuana use at one point. There was some questions, I believe, on tobacco use as well.

Q. But the main purpose of that was to discuss marijuana?

A. Yes.

Q. Have you ever spoken before any scientific groups concerning tobacco and health?

A. You mean in scientific presentations?

Q. Yes, sir.

A. Probably multiple times.

Q. What times do you recall?

A. Over the past 20 years?

Q. Yes, sir.

A. With some aspect of smoking and health?

Q. Yes, sir.

A. 400 times, 500 times.

Q. Before scientific groups?

A. Yeah. I'm a specialist in lung cancer and in issues involving air pollution and smoke and

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asbestos, chromium 6 and so forth, and those are the types of presentations I've made. It's not uncommon to have cigarette smoking come up in those presentations.

Q. But as far as the topic of discussion, specific topic of your presentation, have you made specific presentations concerning tobacco and health?

A. That was usually simply a part of an overall presentation, maybe on lung cancer or on epidemiology, or on risk assessment or use of scientific information in public health decisions. I mean, you're talking about many years of work in this area that I specialize in.

Q. And do you maintain a library of those presentations that you've given?

A. No, for the most part, I don't. I used

to, but my library got too large. I usually keep the past few years.

Q. Do you recall in the past few years specific presentations that you've made addressing cigarette smoking and health?

A. Yeah, there have been three or four that have had that as an aspect. Like I said, that wasn't the primary aspect of them.

Q. Let me ask you, which presentations in scientific groups did you make where cigarette and

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smoking and health was the primary focus of the presentation? Any?

A. Where that was the primary presentation, focus of the presentation, again, that's kind of vague. It's difficult to answer. Sometimes I would use as an example, how you would assess, say, animal data. So the primary focus may be public health, but yet the primary example that was used was cigarette smoking and occupational exposure or something like that.

So it's very difficult to separate that out specifically. I mean, that's not how scientific presentations are typically given. They're given focusing on a special method or some scientific issue, and that's how they're handled.

Q. As you sit here today, can you recall any specific presentation where the specific topic of the presentation to a scientific body was tobacco and health, that that was the focus?

A. And that was the only topic?

Q. Yes, sir.

A. No, I don't know any of those.

Q. And I think you testified you have consulted with regulatory bodies concerning tobacco and health?

MR. BURTON: Objection; asked and answered.

THE WITNESS: Do you want to clarify what

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you mean by that? Regulatory bodies on -- which regulatory bodies? What are you talking about?

BY MR. TURKEWITZ:

Q. Federal governmental regulatory bodies, like EPA.

A. What do you mean by "consulted with"?

Q. Have you consulted with any federal or state regulatory agency concerning tobacco and health?

A. Not where that was the only concern, but like I say, the questions you're asking are not scientific questions. They're more policy types of

questions and general discussions, and I haven't -- I don't participate generally in those. In scientific meetings, I certainly have with the state of California talked about indoor air and cigarette smoke as a part of indoor air. I mentioned the cabin air quality standards I've done dealing with commercial airliners. Those have all involved some interaction with regulatory agencies. But the primary concern was not cigarettes and health. That was just a part of many different concerns.

Q. Have you ever made any presentations before any tobacco company executives or officials concerning tobacco and health?

A. No, not that I remember, unless they were in large audience.

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Q. Do you know how many toxicologists R.J. Reynolds employs?

A. I have no idea.

Q. Now, you mentioned one toxicologist that you worked with, Wally Hayes, Dr. Hayes.

A. Uh-huh.

Q. He goes by Wally?

A. Well, Dr. Hayes is a toxicologist, but he also does a lot of other things. He's a pathologist and statistician. I don't think he'd characterize

himself as just a toxicologist.

Q. Do you know any toxicologists at R.J. Reynolds?

A. I've met some over the years, and when I attend meetings, I run into toxicologists at R.J. Reynolds or other tobacco companies.

Q. Have you spoken to them regarding their own internal research?

A. No.

Q. Have you reviewed with them internal research reports that they prepared that were unpublished?

A. Only to the extent that I was a peer reviewer for a journal and they were planning on publishing a scientific article in a journal.

Q. Are you familiar with research performed by tobacco companies in Europe?

MR. BURTON: Object to the form.

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THE WITNESS: I'm not sure what you're asking. Do I know that there's scientific research done in Europe by tobacco companies? The answer is yes. I've seen it published in journals, but that's the basis of my knowledge, is scientific journals.

BY MR. TURKEWITZ:

Q. You're not familiar with unpublished

scientific research performed in Europe by the tobacco companies, are you?

MR. BURTON: Same objection.

THE WITNESS: Not really. I haven't reviewed any of that stuff. My focus over the years has been on published scientific information.

BY MR. TURKEWITZ:

Q. Would you agree that the tobacco companies toxicologists are better able to determine the toxicology of cigarettes?

MR. BURTON: Object to the form.

THE WITNESS: Do you want to restate that? I'm not sure I understand what you've just asked.

BY MR. TURKEWITZ:

Q. Would you agree that toxicologists that are employed by the tobacco companies are in a better position to determine the toxicology involving cigarettes and exposure to tobacco smoke?

MR. BURTON: Same objection.

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THE WITNESS: My concern with toxicologists is generally not who they work for, but how good they are professionally, and that is the yardstick that I judge how well they would do in assessing the toxicity of some material, regardless

of whether they work for a tobacco company or pharmaceutical company or whatever. If it's a good scientist, it's a good scientist.

BY MR. TURKEWITZ:

Q. Do you believe that the toxicologists at R.J. Reynolds are good scientists?

A. I just got through telling you, I don't know how many are there. I don't necessarily know who all of them are. So I can't answer the question. I assume that they're good scientists, but I don't know that. I don't know them.

Q. Would you agree that those toxicologists at R.J. Reynolds would know more about the harmful effects of R.J. Reynolds's products?

MR. BURTON: Object to the form.

THE WITNESS: That's asking me to draw a conclusion based on a set of assumptions. I don't even know how to do that based on your question. If the toxicologists, whether they work for them are not, are provided information, they can do a scientific analysis of it.

BY MR. TURKEWITZ:

Q. Would you agree that the tobacco

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companies would know more about the hazards of their own products or would be in a position to know more

about the hazards of their own products?

MR. BURTON: Object to the form.

THE WITNESS: Well, again, that's difficult to answer. I would assume -- I guess the only way I can say is, I would assume companies would try to know a lot about their products, but sometimes people outside the companies end up knowing more about it than the company itself.

BY MR. TURKEWITZ:

Q. And sometimes it is the other way around; too; correct?

MR. BURTON: Object to form.

THE WITNESS: Like I say, it comes both ways. So I can't really answer your question.

BY MR. TURKEWITZ:

Q. If research conducted by the cigarette companies demonstrated disease, would you agree that the results of that research should be published?

MR. BURTON: Object to the form.

THE WITNESS: It's too vague. I really can't answer that. What I told you before is if there's important health effects information, scientific information is confirmed, that should be provided to the public.

BY MR. TURKEWITZ:

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Q. Do you recall when you were first contacted regarding this case?

A. I don't remember the exact date, but it was mid-last year or maybe earlier in the year, something like April or May of '99.

Q. And do you recall who contacted you?

A. I believe it was Ursula Henninger, who is an attorney.

Q. Did that attorney provide information to you?

A. I don't know what you mean by "provide information." Obviously they did, because I had to know something about the case. Our initial contact, I assume, was by telephone, and that's when she provided me some information about the case.

Q. Okay. Do you recall what information she provided to you?

A. No, huh-uh, not from the telephone conversation. She just said -- probably told me a little bit about it and asked me if maybe I would be interested in looking at the case. Obviously, I told her I was.

Q. Did you agree at that point to act as an expert in this case?

A. Well, not until I had looked at whatever

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information she was sending me.

Q. And what information did she send you?

A. I'm trying to think whether I read a complaint from her or something like that or whether it was just informal discussion over the telephone as to what was happening. This had been -- this actually had been in the newspapers. So I was aware of what some of the issues were. I don't know if there was written material provided or it was based on discussions that we had. It's over a year ago.

Q. What is your understanding about this case and the issues in this case?

A. Well, very briefly, my understanding is that there's -- my concern with the case is the issues of cancer research, how it's been done over the years, and specifically cancer research for cigarette smoking, and that ties in with the issue of the case, of the relative risks of cigarette smoking and asbestos exposure.

Q. Do you know who the Plaintiff is in this case, or Plaintiffs?

A. Did I what?

Q. Do you know who the Plaintiffs are in this case?

A. Yes, I think I do. It's a trust fund,

but I don't know the specifics or the legal issues

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surrounding that.

Q. And what have you done since you were first contacted by counsel for R.J. Reynolds?

A. I went back and reviewed the scientific literature back through as early as the 1930s on cigarette smoke and cancer and reviewed the epidemiologic studies, for example, of 1950 and the Surgeon General's report that was published in '64, and the progress that's taken place in this area in molecular biology and so forth so I would have an understanding of historically how this field has developed over the years.

Q. Had you not already done all that work prior to this, prior to first being contacted in this case?

A. Well, I had done a lot of this work throughout my professional career. I mean, this is an area that I've kept up with ever since I was in doctoral training. So it's a matter of going back and reviewing it.

As I mentioned, over a year, there was only 85 hours spent on this. So in 85 hours, you couldn't review hundreds of thousands of documents, but I did go back and read some of the materials that

I was not as familiar with and looked also to see if there were new things that had been published that I hadn't seen yet.

Q. Now, this list that we've marked as

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Exhibit 3, is this not a list that had been at one time, prior to being first contacted in this case, prepared?

MR. BURTON: Object to the form. It's been asked and answered. We're not going to go over it much more, Rob.

THE WITNESS: You want to restate your question?

BY MR. TURKEWITZ:

Q. Yes. This list that's been marked as Exhibit 3, is this a list that had been prepared prior to you being contacted in this case and amended for this case?

MR. BURTON: Object to the form. Asked and answered.

THE WITNESS: Like I say, that was prepared for this case. It was based on, as I told you earlier, a computer file I had of relevant information which I went through and added and removed from for this case. That's how it was prepared. I think I already answered that two or

three times.

BY MR. TURKEWITZ:

Q. How much time did you spend doing that?

A. I think it was 85 hours that I've spent thus far on this.

Q. But you don't know how much time

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specifically you spent on amending this computer list that you just mentioned?

A. No, I can't tell you how many hours were spent on that. My guess is putting a list like that together and checking the references and so forth, we're talking about at least a day's worth of time.

Q. Eight hours?

A. Eight hours. I mean, there are quite a few references on there. I want to make sure they're correct and the ones that I think are important. It takes time to do that. It may have been two days.

Q. Okay. 16 hours?

A. It may have been a half day.

Q. Four hours? Let's say it's 16 hours. That leaves 66 hours, correct, that you billed?

A. Uh-huh.

Q. What did you do for the 66 hours? What did you spend your time doing?

A. I read those articles and put together

the information and addressed some of the issues, looked at things that I thought were important, especially newer publications.

Q. What newer publications did you review?

A. We did a literature search on cigarette smoking and any overlap between cigarette smoking and asbestos.

Q. For this case in particular?

A. Yes.

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Q. And are those articles addressed in your list?

A. The ones that I thought were important at the time are in the list.

Q. Can you identify those for me?

A. It's sitting in front of you.

Q. Can you identify those articles that you picked out from your literature search relating to asbestos?

A. You're talking about the recent literature search?

Q. Right, relating to asbestos and tobacco.

A. These are not listed chronologically. So it's really hard to find these. Some of these were also what are called tree searches. There's a set on page 5 that I think are out of the tree searches.

Again, you're asking something that's very difficult to go back and say where these actually came from; in other words, how they originate on this list. But I think Evans is a new one, "The Role of Human Cytogenetics in Studies of Mutagenesis and Carcinogenesis." And then Nowell, "Chromosomal and Molecular Clues to Tumor Progression."

Some of these are newer articles that we got copies of that were from literature searches and then tree searches that were done on those. Let's see if there's any others I can find in here. I

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think Takahashi on page 8 is also a new one, "Effects of Minute Amounts of Cigarette Smoke with or without Nebulized N-Nitroso-N-Methylurethane on the Respiratory Tract of Mice." Again that's probably out of a tree search. I think I also had the Coggins article, the '93 one. That's on page 8. I think the Minna one on page 10 was a new one. The other one was, I think, one that was already in there. Like I say, this is the best I can guess. This is in March '89, on "Transcription Factors and Recessive Oncogenes in the Pathogenesis of Human Lung Cancer," I think that was a new one.

Q. Where is that located on page 9?

A. Page 10, the second one down. A lot of

these articles are older articles, too, because like I say, I went back and looked at the development of the science. I think Curran is a new one, March 1990, "Lack of Apparent Differences in Outcome Between Clinically Staged IIIA and IIIB Non-Small Lung Cancer Treated with Radiation Therapy."

Q. That's on page 12 at the bottom?

A. That's on page 12 at the bottom. I think I put also the last one, Sutter, on here, S-u-t-t-e-r, it's on page 13. That's more on causation of Koch's postulates. It may have been on the early one. That's a more recent discussion on the theoretical basis of causation.

Q. So in this case, those are the articles

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that you added to this list?

A. Well, like I say, the best I can do in going through the list. I can't assure you that every one was added and every one was taken out, but I think those are some of the newer ones that I put on this list that may not have been on a previous list that we've talked about.

Q. I would ask if you could just circle those, if you would, if you could take a pen and just circle them. On page 5 I made a note, Evans and Nowell. Maybe you can just go to page 5 and so it's

confirmed.

A. It's not confirmed. Like I say, these are ones that deal a lot with the molecular basis of lung cancer and ones that we've been focusing on in the last few tree searches. What do you want me to do?

Q. On page 5 -- feel free to go through it again, but I've made notes of the ones you identified you added for this case. Page 5, Evans and Nowell?

A. What's the purpose of this?

MR. BURTON: We've identified them for purposes of the record.

BY MR. TURKEWITZ:

Q. I want to have them circled.

A. Why do you want them circled? I mean, give me the page numbers, and I will read them to you

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again.

Q. Well, you started with page 5.

A. Okay.

Q. I believe you indicated you added Evans. Would you please --

A. Actually, I think Evans was a newer one we put in.

Q. Can you circle that for me, please?

A. I'm just going to circle it?

Q. Yes.

A. I will just put a check next to it. Is that all right with you?

Q. Yes, a check will be fine. And Nowell, I believe you indicated that --

MR. BURTON: He's going to ask you to do this, silly as it is, with respect to each one that you mentioned. You can use my pen.

THE WITNESS: Which page now?

BY MR. TURKEWITZ:

Q. I think you're on page 5. I'm basing this on your testimony. You indicated you added Nowell.

A. Okay.

MR. BURTON: I want the record to be clear that he has not affirmatively, absolutely said he added all of these. He's trying to do the best he can.

MR. TURKEWITZ: I understand that.

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THE WITNESS: It's extremely difficult to go back through and say this article came in at this particular time period because of this. It's nearly impossible to do, but I'm trying to answer your questions.

BY MR. TURKEWITZ:

Q. I'm just trying to determine what you've done in this case.

A. I think that's pretty clear. Page 8?

Q. I think you indicated Takahashi on page 8; is that correct?

A. Yeah, that's one that I think is a newer one.

Q. And I think you indicated Coggins on page 8.

A. Yeah. Coggins may have been an earlier one, although this is a sidestream smoke issue. Coggins is probably newer. I don't know.

Q. Page 10, I think you indicated Minna?

A. Yeah. I think this is a newer one. The other one was --

Q. I think you indicated page 12, Curran, and I think you indicated on page 13, Sutter; correct?

A. Yeah, that's the one that I indicated I think was added.

Q. Are there any others you feel you were

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added?

A. I've already gone through it. That's the best I can do for you.

Q. And how much time did it take you to

review your list and add these additional articles?

MR. BURTON: Rob, I don't really want to do this, but that's the third time you've asked that question. We went over whether it was four hours, eight hours, or 16 hours.

MR. TURKEWITZ: You're right.

MR. BURTON: If we're going to keep doing it, I'm going to tell him not to answer it. We've now been here for almost seven hours, five hours of testimony.

BY MR. TURKEWITZ:

Q. What else did you do with regard to this case?

A. Would you like to tell me what you've got on your list? I think I already told you what I did. We did literature searches, reviewed especially current information. We went back and did tree searches and looked at what articles were referenced, certainly talked with the attorney to find out what the schedule was and what issues they wanted to make sure that we were addressing. I mean, that's -- in over a year, there were only 85 hours.

Q. What is a tree search, by the way?

A. A tree search is where you take a new

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publication and you look at the references that

they've referenced and you go back and see what their basis was. So the article itself may not be that important, but they may have found something that you think is particularly relevant.

Q. Okay. I think you -- I thought you had indicated that some of the newer articles that you identified involved asbestos and cigarette smoking -- tobacco; is that correct?

A. I think so. Like I said, I'd have to take a look at the articles again. A lot of these deal with lung cancer and deal with multiple risks of lung cancer, including asbestos exposure.

Q. Can you tell me which of these articles involved asbestos exposure?

A. I suppose I could try.

Q. Why don't we do this. Why don't you review that --

A. What am I looking for again?

Q. You're looking for articles that you have on your list that involve asbestos and tobacco.

A. In addition to the ones I checked?

Q. Well, the ones you've checked, those involve asbestos?

A. Are you running out of tape? Okay. The ones I checked were newer articles that came out of

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the more recent searches so far as I can remember. There are other articles in here that have asbestos as an important aspect in them in addition to cigarette smoke. These are articles that deal with lung cancer.

Q. Okay. But I guess, just so we're clear, the ones that you checked, those involve asbestos exposure?

MR. BURTON: Object to the form.

THE WITNESS: I think I just answered that. The answer is no. They may, they may not. I'd have to go back and look at the article.

MR. TURKEWITZ: Why don't we do that while the court reporter is taking a break. Dr. Thomas can review the list --

THE WITNESS: I still don't know what I'm reviewing the list for. You have to tell me what you want me to do with it.

MR. TURKEWITZ: I'd like you to identify those articles on your list that involve asbestos exposure in addition to tobacco and smoking.

VIDEO OPERATOR: We're off the record at 3:13.

(Recess.)

VIDEO OPERATOR: We're back on the record

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at 3:32. This is the beginning of videocassette number 3.

BY MR. TURKEWITZ:

Q. Dr. Thomas, have you made a note of all the articles that involve asbestos and cigarette smoking?

A. You said asbestos to begin with, but I think most of these involve cigarette smoking as well, along with a number of other agents for the most part.

Q. Okay.

A. Can I see that? The ones with the "As" next to it have some aspect of asbestos discussed.

Q. Okay. Do any of these articles that you've marked focused on asbestos and smoking as a topic?

Dr. Thomas, do any of these articles that you've marked focus specifically on asbestos and smoking as a primary topic?

A. They focus primarily on asbestos and smoking as a primary topic? Well, the research articles that often cover several different compounds that are associated with lung cancer of which cigarette smoke and asbestos are some, there's some in there that have whole chapters on asbestos and

some on smoking and some on both. It's very hard to answer such a vague question.

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Q. So you can't answer the question whether any of these articles involve asbestos and smoking as a primary subject?

MR. BURTON: I'm going to object to the form of the question. I'm going to point out to you, Rob, that you all have had this reliance list six, eight, maybe as long as 10 months. Obviously, you've had the resources to have pulled the articles and be familiar with them. He's done the best he can to identify them, and I think he's answered your question.

THE WITNESS: I didn't say I couldn't. I think I went through and spent the last 20 minutes going through that article and identifying articles that had to do with asbestos and laboratory studies and smoking, and that's what I've done. Some of the chapters, that's the primary focus of the chapter. That's the best I can answer your question.

I might mention that those are the supporting documents for this report. Those are the primary references I used in preparation of this report which reflects the assignment that I had, and I didn't discuss asbestos in this report. I

discussed smoking and health and the history of that development.

BY MR. TURKEWITZ:

Q. Did you amend that report or create that report specifically for this case?

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A. Yes, I did.

Q. And it doesn't mention anywhere at all asbestos; correct?

A. That's not what I was asked to look at. I was asked to look at the other issues, specifically the development of research in the area of cigarette smoking and cancer research over the years. I was not asked to look at asbestos.

Q. Okay. Is it fair to say that your report contains all the opinions you expect to render in this case as you sit here now?

A. At this point before the trial even starts, I think it's a good representation of what I plan on saying at trial.

Q. Your invoice mentions that you reviewed medical issues concerning the creation of the trust. What medical issues did you review?

A. Like I say, in the literature searching that we did, we did get some articles and information that came up about the formation of the trust and how

it was formed and the reasons it was and how it was used to pay people that had losses because of asbestos exposure. That's what I'm referring to.

Q. Are those articles contained in your list?

A. No, because they were not discussed in the report.

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Q. And you don't expect to testify about those articles; correct?

A. I haven't been asked to testify about asbestos.

Q. Your invoice mentions that you reviewed medical records for Robert Falise.

A. Well, Robert Falise is a trustee for the trust. We have records that are medical records. I think the statement is probably incorrect the way it's worded. It sounds like they're medical records for him. My understanding is he's head of the trust. We have medical and scientific records that deal with smoking and asbestos exposure and so forth. That's what that is supposed to refer to, but I think it's a little misleading.

Q. You didn't mean medical records. You meant scientific articles?

A. Some of these are actually medical

records.

Q. What medical records did you review?

A. These are not directly associated with the case. These are ones that I have in my indexes and files from courses I've taught and so forth.

Q. And is it fair to say you do not intend to testify about those records?

A. Well, only to the point that I'm asked to testify based on my expert knowledge. I have not been asked to testify on asbestos.

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Q. Did those medical records involve asbestos, or did they just involve tobacco?

A. Some of them involved asbestos. I have a series of pathology slides and so forth on asbestos which are medical records.

Q. And you do not obviously have them here today; correct?

A. No.

MR. TURKEWITZ: Just for the record, we'd object to him testifying about any other materials that he's not brought with him today.

BY MR. TURKEWITZ:

Q. By the way, looking at your invoice, how much do you bill out for Chad McMullin's time?

A. They're all billed at the same rate.

Q. $300 an hour?

A. Uh-huh. On that invoice it was $300 an hour.

Q. Each individual? Okay. What is Mr. McMullin's background?

A. Biochemistry, ecology, risk assessment, toxicology.

Q. What degree does he have?

A. He has a master's degree in environmental sciences, maybe environmental sciences and toxicology from -- is it University of Wisconsin? One of the universities in the Midwest.

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Q. And then the research assistant, you mentioned Michele?

A. No. That's -- well, Michele is one, but I don't think I mentioned her. Debbie Williams was the one I mentioned this morning.

Q. Debbie Williams, I'm sorry. That's right. What is her background?

A. Her background is office management, literature searching, computerized systems for handling literature. She handles the acquisition of literature and filing and so forth.

Q. Is she a secretary?

A. Well, she's an administrative assistant.

I think she has more sophisticated background than a secretary in that she knows how to set up computer systems and run Adobe scanning, that type of thing.

Q. What is her educational background?

A. She has a bachelor's degree. I'm not sure what it's in. She's worked with us for several years.

Q. What did she do, by the way, in connection with this work?

A. She's the one that ordered the literature and supplied literature searches and so forth once we designed how they were to be conducted. She took care of the day-to-day filing in putting this material together.

Q. Is it your opinion, based on animal

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studies, that smoking cannot be deemed a cause of lung cancer or deemed to cause lung cancer?

MR. BURTON: Object to the form.

THE WITNESS: Would you like to restate it. I will try to answer it the best I can if you can restate it.

BY MR. TURKEWITZ:

Q. Okay. Is it your opinion that based on the results of animal studies involving exposure to tobacco smoke, that smoking cannot be deemed to cause

lung cancer?

A. Well, again, you almost worded it the same way. That's full of issues and assumptions. The best way to say it is that laboratory animal studies have been conducted and generally have been negative for cigarette smoke, if that's what you're asking, which I'm not even sure it is. That's the way I would have to answer it.

Q. Do you rely on that in your testimony?

A. Yes.

Q. And what is your opinion based on that?

A. My opinion is there have been hundreds, probably thousands of publications, just on laboratory animal studies and how animals -- and these are generally negative. They generally don't show any cancer.

Q. Have you come to any conclusions as to

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whether tobacco smoke causes lung cancer?

A. Tobacco smoke? How are you defining "cause"?

Q. Let me ask it this way: have you come to any conclusions as to whether smoking cigarettes is a cause of lung cancer?

A. Again, you'll have to define what you mean by "cause." It's a term that's used in various

ways in various regulatory settings.

Q. How do you define it?

A. I don't define it. You tell me what the setting is, and I will give you a definition. As a scientist, I would define "cause" as understanding from a laboratory study what the mechanism of the disease is.

Q. Is it important to know the mechanism?

A. It's essential to know it.

Q. Let's define it that way, then, in knowing the mechanism. Is it your opinion that one cannot say that smoking causes lung cancer based on the animal studies?

A. You've got a sentence with two negatives in it. Like I say, the animal studies are negative, are generally negative, and they do not currently support ability for us to understand what the mechanism is for lung cancer.

Q. So you aren't able to determine or say that smoking causes lung cancer; correct?

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A. Based on a scientific definition, requiring the laboratory animals, that's a correct statement.

Q. Okay.

A. If you use the public health statement

where you have epidemiologic studies that have conducted, there have been several positive epidemiologic studies and there's a preponderance of information that there is a risk to human health from cigarette smoking. If you want to define that as cause, then you can say that it does cause it, but it really is depending on how it's defined.

Q. How do you define it in your work?

A. You mean as a scientist?

Q. Yes, sir.

A. I define it as other scientists do. In other words, it's essentially that we understand the mechanism of how something actually causes the disease. That's what cause means, and that's what we're looking for in laboratory animal studies. Without valid laboratory animal models and without having successful studies that we can run, we do not know what caused the disease or how it was caused. That doesn't say there will be an increase in it. We just don't know how it's caused. That's currently where we stand.

Q. Based on the results of animal testing,

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is it your opinion that smoking does not cause lung cancer consistent with the consensus of the scientific medical community?

MR. BURTON: Object to the form.

THE WITNESS: I don't even know what your question was. You're going to have to restate it even for me to understand what you're asking.

BY MR. TURKEWITZ:

Q. Your testimony that looking at it from a scientific perspective and the requirement that there be a model, is it your testimony that smoking cannot be deemed a cause of lung cancer consistent with the consensus of the medical scientific community?

MR. BURTON: Object to the form.

THE WITNESS: Well, that assumes that the scientific community disagrees with me. That's not the case. Scientists such as myself who have looked at these all come to the same conclusion. In fact, if you pull out current textbooks, you will find the same information I just gave you in current textbooks. So that's -- the consensus of the scientific community is what I just told you, that we do not -- from laboratory animal studies, we do not understand the cause.

BY MR. TURKEWITZ:

Q. Is your opinion consistent with the published literature?

MR. BURTON: Object to the form.

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THE WITNESS: Again, I don't know what published literature you're referring to. It's consistent with scientific understandings and observations today, including leading textbooks, and as a basis for extensive research today.

BY MR. TURKEWITZ:

Q. Do others at the International Center for Environmental Technology agree with your opinion that, based on animal studies, smoking cannot be deemed a cause of lung cancer?

MR. BURTON: Object to the form.

THE WITNESS: I can't speak for other people. I don't know if they agree or disagree.

BY MR. TURKEWITZ:

Q. Would it also be reasonable for the public to believe, based on results of animal studies, that smoking does not -- cannot be deemed a cause of lung cancer?

MR. BURTON: Object to form.

THE WITNESS: Again, you're asking me to make a policy statement. I'm a scientist. I believe that the public has been told fairly extensively for many years, ever since certainly the Surgeon General's report from '64, that smoking is, quote, a cause of lung cancer based on epidemiologic studies

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that they reviewed, certainly of man in '64, and I think the public has heard that repeatedly and can read it on the cigarettes and so forth. But that's outside of my field of training. My field of training is in research.

BY MR. TURKEWITZ:

Q. You understand that tobacco companies have taken a public position that based on animal studies, one cannot say that smoking causes lung cancer?

MR. BURTON: Object to the form.

THE WITNESS: Again, I think you're putting words in their mouth. I think they, over the years, have said the same thing that scientists have said, that we don't have a good laboratory animal model for cigarette smoking the way we do for a lot of other materials.

BY MR. TURKEWITZ:

Q. And therefore, smoking may or may not cause lung cancer?

MR. BURTON: Object to the form.

THE WITNESS: What they're -- I can't speak for what the companies say, but the statements that I've seen over the years, I think, is consistent with the science. Now, I haven't seen every

statement, and again, you're outside my area of

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expertise. I think maybe what you want to talk with is a historian.

BY MR. TURKEWITZ:

Q. Would it be misleading for a company to say that smoking may or may not cause lung cancer?

MR. BURTON: Object to the form.

THE WITNESS: Do you want to ask that again? I'm not sure I even understand your question.

BY MR. TURKEWITZ:

Q. Yes, sir. Would it be a misleading statement for a tobacco company to say that smoking may or may not cause lung cancer?

MR. BURTON: Same objection.

THE WITNESS: It's not up to me what companies say, and I -- I don't even know how to answer your question.

BY MR. TURKEWITZ:

Q. Do you believe that would be a misleading statement? Yes or no.

MR. BURTON: Same objection.

THE WITNESS: That's not the kind of statement I would make. That's not a scientific statement. That's the problem I'm having with it.

It's a policy statement. I don't set policy for companies.

BY MR. TURKEWITZ:

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Q. You disagree with that statement, do you not?

A. I don't even understand the statement.

MR. BURTON: Same objection.

BY MR. TURKEWITZ:

Q. Do you believe that consumers have a right to rely on statements made by a manufacturer regarding their product?

MR. BURTON: Object to the form.

THE WITNESS: Again, that's outside of my expertise. I don't know what consumers rely on, what they don't rely on. I know that there's laws and so forth that require labeling of products and that type of thing, and I think my experience has been, which is all I can speak from because it's not my expertise, just my experience, most of the companies I've worked with have tried to provide information to the consumer that would help them safely use the product.

BY MR. TURKEWITZ:

Q. Okay. And you wouldn't expect a tobacco company to tell the consumer that smoking may or may

not cause lung cancer, would you?

MR. BURTON: Object to the form.

THE WITNESS: Well, like I say, the problem is the way you're putting it, from a scientific standpoint, it's kind of an inane question. I don't even know how to answer it. It

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does or does not or maybe or should or shall. I'm sorry. I just can't answer that type of question.

Should the company come out and let people know where the scientific research stands? That's -- I think that's a reasonable question to ask, and I can answer that if you want to ask me that.

BY MR. TURKEWITZ:

Q. Do you agree that smoking causes lung cancer?

A. Do you want to define "cause"? I think we just talked about that.

Q. You smoke cigarettes and your chance of developing lung cancer greatly, greatly increase?

A. Your risk -- if you're a smoker, your risk of getting lung cancer is somewhere between 110 and 100, depending how much you smoke and if you stop smoking, it slowly decreases over time.

Q. Let's talk about the amount of exposure

in humans. Would you agree that each puff of smoke from a cigarette constitutes one dose?

MR. BURTON: Object to the form.

THE WITNESS: One dose of what?

BY MR. TURKEWITZ:

Q. Of tobacco smoke.

MR. BURTON: Objection.

THE WITNESS: No, I wouldn't agree to

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anything like that. That's not a scientific approach.

BY MR. TURKEWITZ:

Q. How many cigarettes are in a pack? Do you know?

A. I guess there's 20 cigarettes in a pack.

Q. And do you know how many puffs the average person takes per cigarette?

A. Not right now. I'd have to go back and look it up.

Q. Do you know how much smoke is in each puff?

A. I've done that type of calculation before. I don't remember now. It's certainly going to vary widely from person to person.

Q. Do you know how much smoke is drawn from the average person when they smoke?

A. Not offhand. I'd have to go back and look it up.

Q. Do you know how long a smoker holds an inhaled amount of smoke in his or her lung before exhaling?

A. It's going to vary tremendously from person to person, I assume. I mean, some of the types of dosimetry calculations that you're talking about I've done before, but off the top of my head right now, I don't know the answer to that.

Q. And you mentioned animal testing. Were

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animals in the tests that you're familiar with were exposed to tobacco smoke, was the smoke diluted or undiluted?

A. It depended on the study. For the most part, the smoke was undiluted, although some of the studies were actually diluted smoke. It depends on even how the smoke was introduced.

Q. Why would you want to use diluted smoke?

A. Well, what you're trying to do in laboratory animal studies is replicate what humans are exposed to as close as possible. And if you wanted to try to measure a concentration and get the concentration similar to what humans are actually exposed to, you may want to dilute the smoke or you

may actually want to concentrate it.

It depends on the study. If you're talking about dosimetry, we want to try to set the doses so they're the same.

Q. But aren't humans exposed to undiluted smoke when they smoke?

A. What do you mean by "undiluted smoke"? You mean the smoke that comes directly through the cigarette?

Q. Yes, sir.

A. What about sidestream smoke? You're not exposed to that?

Q. You're the expert. You tell me.

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A. Okay. Well, you ask your question. I'll try to answer it.

Q. Okay. Would you say that the smoke that humans are exposed to is diluted?

A. It may or may not be, depending upon how they smoke and people smoking around them. I mean, there's all different types of possible exposures.

Q. So is it true that some people are exposed to undiluted smoke?

A. Well, again, I don't know what you mean by "undiluted." If you mean the smoke that comes directly from the cigarette, I guess you would say

yes, if that's how you're defining it. But again, I don't know how you're defining it.

Q. What is a latency period?

A. What is a what?

Q. A latency period? Can you define that?

A. A latency period is the time between something occurring and an outcome. It may be -- you know, we talk about latency periods for cancer. It might be 20, 30, 40 years.

Q. Do you know, is there a latency period for lung cancer in humans?

A. It depends upon what kind of lung cancer it is. It varies, depending upon the type of lung cancer. Some of the lung cancers are seen relatively early. Some are fairly late. Lung cancer generally tends to be a disease of older people.

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Q. Is there generally thought to be a latency period with regard to lung cancer from smoking?

MR. BURTON: Object to the form.

THE WITNESS: Well, you're talking about the epidemiologic studies that have been conducted to date. I guess you would say in a lot of the studies there appears to be a latency between the time a person starts smoking and when you start seeing a

statistical increase in cancer. That would be the latency period.

BY MR. TURKEWITZ:

Q. And do you know what that latency period is approximately, what the range is thought to be?

A. It varies. A typical latency period for cigarette smoking, just to give you some kind of number, is 20 to 30 years is what a lot of people believe. It may be shorter, it may be longer. It may be as much as 40 years. The problem is, as I mentioned before, only about one person in 10 that smokes is going to get lung cancer.

Q. What factors could be reasons for tobacco not inducing a particular type of cancer in laboratory animals?

MR. BURTON: Object to the form.

THE WITNESS: What are factors now?

BY MR. TURKEWITZ:

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Q. What are factors that could be reasons for tobacco smoke not inducing a particular type of cancer in laboratory animals?

A. Well, I assume you're asking a backwards question of why have the studies been negative over the years. And there have been various issues that have been examined, such as the lack of dose the

animals received or did not inhale the way humans did or it was a wrong animal model. They were nose breathers rather than mouth breathers.

I mean, there's a lot of different approaches or issues that have been looked at. We're actually quite astounded with scientists that we have been unsuccessful with cigarette smoking whereas with most other lung carcinogens they've been successful.

So there's been a big attempt to try to modify how it's introduced and so forth to try to produce tumors and we haven't been able to do it.

Q. When people smoke cigarettes, generally do they inhale deeply?

MR. BURTON: Object to form.

THE WITNESS: What do you mean by "deeply"?

BY MR. TURKEWITZ:

Q. Well, do they inhale --

A. I think it depends on the smoker. Again, there's wide variation from person to person.

Q. There are people who inhale deeply;

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correct?

A. I assume so. If you go to marijuana, there's people that inhale and hold their breath, but that's not with cigarettes. But it varies widely,

and some people don't even like to inhale marijuana from my understanding, marijuana smoke.

Q. Are laboratory animals capable of deep inhalation?

MR. BURTON: Objection to form.

THE WITNESS: It depends how the animal is set up to inhale. The question is whether the laboratory animals are able to get a dose equivalent to a human's. The answer is they haven't been able to confirm they have.

BY MR. TURKEWITZ:

Q. Which ones, which animals?

A. Rats have been looked at that in some detail and found that the doses were pretty equivalent to what humans were exposed to. In fact, in some of the laboratory animal studies, especially when they looked at hamsters, they found that the dose sometimes is several hundredfold higher than what humans were actually exposed to.

Q. Do you know what the latency period is for a rat or a hamster with regard to tobacco smoke and lung cancer?

A. I don't, because it hasn't been

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successfully produced. For other substances, the latency period can be as short as three or four months.

Q. Would you agree that the latency period may be one of the reasons why we're not seeing lung cancers in laboratory animals exposed to cigarette smoke?

A. No, no, that's wrong.

Q. What do you think is the most logical reason in your mind why we're not seeing lung cancer in laboratory animals, in experiments and studies that you are relying on?

A. I'm not sure why we're not seeing them. We've looked at a lot -- I've looked at a lot of different issues in that area. If cigarette smoking is a carcinogen at all, it's a very weak one, and that may be the reason that we're simply not seeing them in animals is the animal models aren't sensitive enough. People have looked at that issue, and I don't think they've been able to resolve it yet.

Q. What are some of the differences between -- the physiological differences between the animals that have been studied and humans?

A. Which animal would you like to talk about?

Q. Which animals are you relying on with respect to the studies that you're familiar with?

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A. Well, a lot of the studies have been done on rats and mice. There have been primate studies that have been conducted. There have been quite a few conducted in dogs. There have been studies conducted in hamsters, rats -- or rabbits, foxes. There's a lot of other animals, too, but those are the major ones. They've even conducted them in chickens.

Q. And again, what do you see as being the major physiological differences in mechanisms that are involved between animals or humans?

MR. BURTON: Object to the form.

THE WITNESS: Like I say, there are differences between each one of those animals, and there are actually differences between you and I. If you do a pulmonary capacity study and I do, you probably have a different one than I do. So there are differences between individual people, individual animals, and there's differences between strains. Some of the animals are actually fairly similar to humans in structure.

One of the reasons we've tried to use dogs in the past is that the structure of the dog's lungs are fairly similar to human lungs and the way they function is quite similar, but we've been

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unsuccessful in the dog studies. Some easy studies to conduct are the rat studies and mice studies. They're a lot less expensive and a lot less cumbersome than dealing with large dogs, and the animals are smaller. They have some of the same protective mechanisms, though, that we have in our lungs such as macrophages and so forth.

So there's some differences in size, but based on the size of the animal, the differences aren't that significant. One of the problems we sometimes have is they're nose breathers rather than mouth breathers. And so we have to make sure that they're getting a sufficient dose through the nose or the introduction may be different. There are individual differences from one animal to the other animal. We could sit down and spend hours just talking about one or two of these.

BY MR. TURKEWITZ:

Q. When you say "dose," though, are you talking about dose being deep inhalation and the smoke getting down to the deep recesses of the lungs?

A. I'm talking about what's called the biologically effective dose. How much of the dose actually gets into the animal, circulated through the

animal's system, biologically.

Q. That confirmation that you talked about,

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was that confirmation that it is getting down to the inner recesses of the lung?

A. The confirmation is the animal is getting it in its body and it's being systemically circulated throughout the body. It's done various ways. One of the ways, for example, is to look at blood samples.

Q. That could occur without it getting into the inner recesses of the lung; is that correct?

MR. BURTON: Object to the form.

THE WITNESS: The question is so vague scientifically that I can't really answer it.

BY MR. TURKEWITZ:

Q. Do you agree with the statement that nobody knows what causes lung cancer?

MR. BURTON: Object to the form.

THE WITNESS: It depends on how you define "cause." If you define it the way I was defining it, the way scientists do, based on laboratory animal studies, mechanistic studies, the answer is nobody knows what causes it. If you base it on epidemiologic data along with the strength of those statistical associations, you can say we do know that it causes lung cancer statistically.

We just don't know how it does it. It's because of the vagueness of the use of the word "cause."

BY MR. TURKEWITZ:

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Q. Have you been retained by R.J. Reynolds to testify in various cases that the individuals, based on your review of the medical record, that the individual Plaintiffs' exposure cannot be deemed to be a cause of their lung cancer?

MR. BURTON: Object to the form.

THE WITNESS: I'm not sure what you're asking.

BY MR. TURKEWITZ:

Q. Let me restate my question.

A. Yeah.

Q. Have you been retained by R.J. Reynolds and its attorneys to testify in various cases based on a review of medical records that the individual's smoking cigarettes could not be deemed to be a cause of that individual's developing lung cancer?

MR. BURTON: Is your question whether or not he's been retained to render a opinion with respect to specific causation in each individual case?

MR. TURKEWITZ: Yes, in individual

cases.

THE WITNESS: I've been asked to look at causation and relative risks of smoking and other exposures.

BY MR. TURKEWITZ:

Q. And as a matter of course, what you do is you look at that individual's medical records, and

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you look for things -- other things that may have contributed to lung cancer; is that correct?

A. You look at the smoking, you look at family history, you look at all the potential risk factors for lung cancer or other forms of cancer.

Q. And it's your job to help prove that that individual did not develop lung cancer as a result of smoking; is that correct?

A. No, that's wrong. My job is to look at the scientific information, medical records, and evidence and to give my opinion. They can accept my opinion or not accept it. That's up to them.

Q. And your opinion in these cases where you're testifying for R.J. Reynolds, is that smoking did not cause their lung cancer; is that correct?

A. I don't know what cases you're referring to.

MR. BURTON: Object to form.

THE WITNESS: We're not talking about other cases. We're talking about Falise. I don't know even where you're going.

BY MR. TURKEWITZ:

Q. We're talking about other cases where you're testifying as an expert for R.J. Reynolds.

MR. BURTON: I think you need to establish whether or not he's been retained to render specific causation testimony. He may have testified

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in individual cases consistent with his testimony here with respect to the development of research that relates to smoking and causation. I don't believe -- maybe I'm wrong -- that he has been retained effectively as a clinician to come in and do the pathology and look at an individual lab report and say this individual has or this individual's cancer was or was not caused by smoking.

BY MR. TURKEWITZ:

Q. I think we've established you're not going to be talking about any individual cases in this case; is that correct?

A. That's my understanding.

Q. Do you view smoking as a significant inherent risk of an individual developing lung cancer?

A. Let me see if I understand what you're saying. "A significant inherent" -- I don't even understand what those terms mean. It's a risk factor for a person developing lung cancer, and it may be an important risk factor.

Q. Do you view it as a significant risk factor?

A. It depends again on the person, on what their exposures have been, what their family history has been, what their lifestyle is. It may or may not be. They may be a smoker, but the smoking may not be a risk factor for even the form of cancer that they

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have.

Q. Let's talk about it in general. In general, is smoking a significant risk factor for developing lung cancer?

A. To me, "significant" talks about statistical probability, and usually we can't do that. In fact, we can't do any statistical probability on an individual. All I can say is it's a risk factor. It may be an important risk factor. It may be a risk factor that's not important or not even a risk factor for development. It depends on the individual. Significance doesn't play a role. You can't do statistical analysis on one person.

MR. TURKEWITZ: Let's take a break. I may have a few more questions left.

VIDEO OPERATOR: We're off the record at 4:16.

(Recess.)

VIDEO OPERATOR: We're back on the record at 4:22.

BY MR. TURKEWITZ:

Q. Dr. Thomas, who do you consider to be a leader in the field of tobacco toxicology, past and present?

A. Today?

Q. Past and present.

A. Oh, there's a lot of people who have done

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work over the years, certainly extensively in the past. I think on the types of studies that we've been talking about, probably somebody like Hans Peter Witschi.

Q. Do you think Dr. Hoffman would be considered a leader in the field of tobacco?

A. I think you're talking about today. Certainly in the past he has been.

MR. BURTON: I think he said one name and you said another; right, as I heard it? You said Dr. Hoffman, and he said somebody else.

MR. TURKEWITZ: I think he said in the past Dr. Hoffman would be considered.

THE WITNESS: Dr. Hoffman was involved in research in the past, has worked for the American Chemical Society, statistics and research. So he was certainly heavily involved, but I mention Hans Peter Witschi as somebody who has done quite a bit of work in this area.

There have been quite a bit of others, too. There's folks right now at Loveless Research Institute doing work in this area looking at inhalation and toxicology.

MR. TURKEWITZ: I have no further questions. Thank you, sir.

MR. BURTON: I have no questions.

VIDEO OPERATOR: We're off the record at 4:24.

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(Whereupon, at 4:24 p.m., the deposition was concluded.)

I HEREBY CERTIFY that I have read this transcript of my deposition and that this transcript accurately states the testimony given by me, with the changes or corrections, if any, as noted.

X

Subscribed and sworn to before me this day of , 20 .

X

Notary Public

My commission expires: .

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C O N T E N T S

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A. WILLIAM ROBERTS, JR., & ASSOCIATES

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